

# QST

A MAGAZINE FOR THE WIRELESS AMATEUR

PRICE 15 CENTS



DESIGNED BY (M)

DRAWN BY H.R. HICK

AUGUST

1917

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## Q S T -- Volume One



In this volume will be found the audion articles by Paul F. Godley, four of the Old Man's "Rotten Stuff", and no end of interesting material.

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# QST

Volume II

AUGUST, 1917

No. IX

## CONTENTS

3. What the Naval Reserve Offers Men  
of the A. R. R. L.
6. A Rotten Dream The Old Man
9. That Wouff Hong Again
10. Double Coplanar Antenna Systems  
Walter S. Lemmon
13. Star of the Second District
15. Masts S. Kruse
17. In the Service Bill Woods
19. Editorials
22. New Wavemeter
23. Radio Communications
27. While We are Resting
36. For Sale and Exchange

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HARTFORD, CONN.

## Looking Forward

The strong tide of discouragement following the closing-up time which swept over the amateurs has turned. No longer do we feel that this time will be lost.

Many have gone to the front as radio operators, but others must remain at home. To these QST will be made more and more interesting. It is the connecting link and is coming back with the tide.

Articles in the September QST will be of such nature as you can little afford to miss. An article entitled "Ground Systems of Communication" by Roy Griffith suggests a fine substitute for wireless.

Dr. Radio has come back with "Phantom Aerials." Dr. Radio has written in his usual understandable style and another opening is made for the experimenter.

Last but not least, of the leaders, will be The Old Man. Enough said.—Editor



# Q — S — T

A Magazine Devoted Exclusively  
to the Radio Amateur

## What the Naval Reserve Offers Men of the A. R. R. L.

*Written Specially for Q S T by the Navy Publicity Bureau*

**T**HE Navy is adding to its list of vessels, hundreds of yachts, small and large. Many of these have wireless outfits, others are to have a small set installed as soon as the material becomes available.

The average civilian with a little experience in boating or yachting can be trained to assume the duties of seamen or quartermaster; and men who have followed courses in technical schools can be utilized in the Engineer's division of these vessels.

It is not so easy a matter to get men to operate the wireless set.

Here's an opportunity for A. R. R. L. men to serve the country and serve themselves.

The proposition is this:

The Naval Coast Defense Reserve (class 4) is composed of men capable of performing special useful service in the Navy or in connection with the Navy, in defense of the Coast of the United States.

### Qualifications:

(a) Must give satisfactory evidence as to ability, character and citizenship.

(b) Must be capable of performing useful service with coast defense vessels, torpedo craft, mining vessels, patrol vessels, or as RADIO OPERATORS, etc.

(c) Must qualify physically before a medical officer of the United States Navy.

(d) Must enroll for four years and remain on active duty so long as the war lasts, then to return to civilian life for the

remainder of the 4 years, subject to a call to active duty only during a National emergency, at the discretion of the President.

(e) Must be governed by the laws and regulations of the Navy during active duty.

(f) Must go to duty wherever needed—no promises are made as to assignment to any particular ship or station.

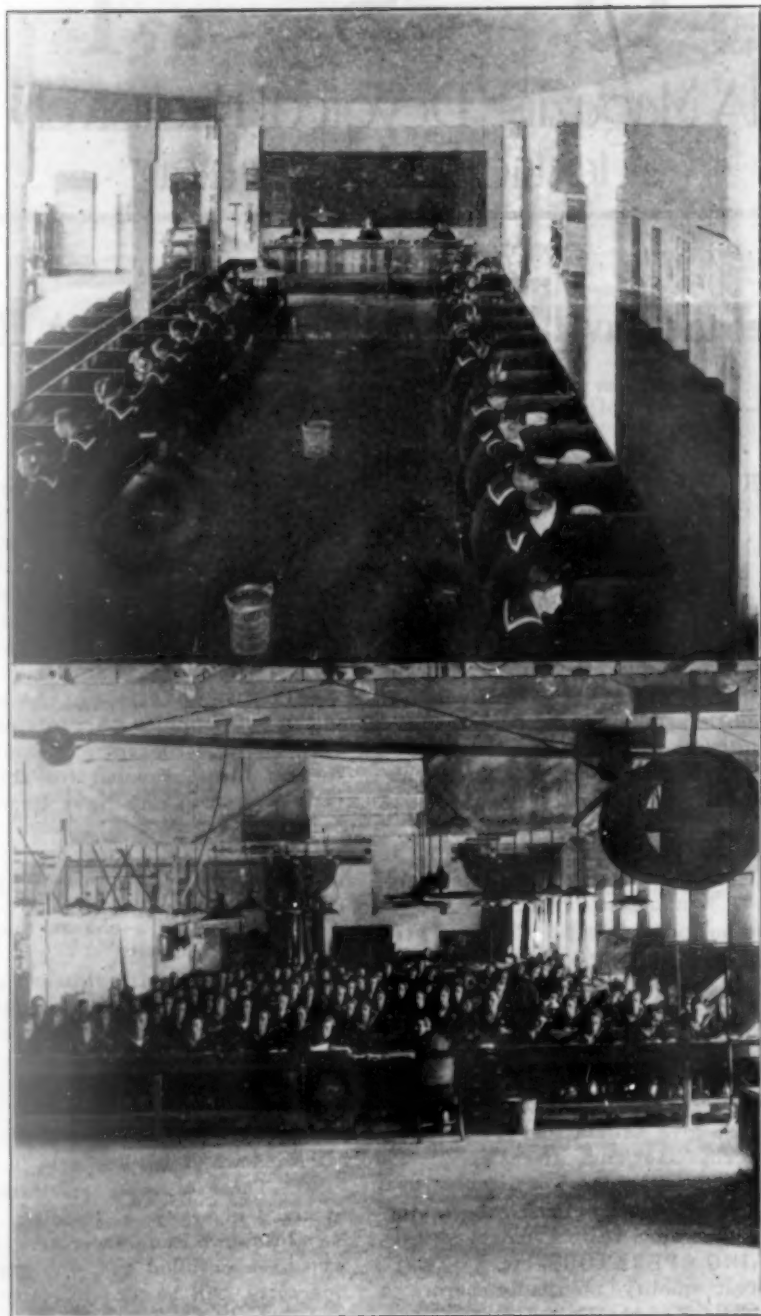
(g) Must be between the ages of 17 and 58; men under 18 years of age must obtain written consent of parent or guardian, on form provided for that purpose, (Can be had at any Navy Recruiting Station.)

### WHAT DOES THE NAVY DO FOR YOU?

(1) Gives you a chance to serve your country.

(2) Enables you to broaden your education; build up your physique; brings you in contact with real men, doing real things; gives you a chance to save money; presents you with a \$60. outfit of clothing which should last more than a year; gives you good, wholesome food and free medical attention when you are sick.

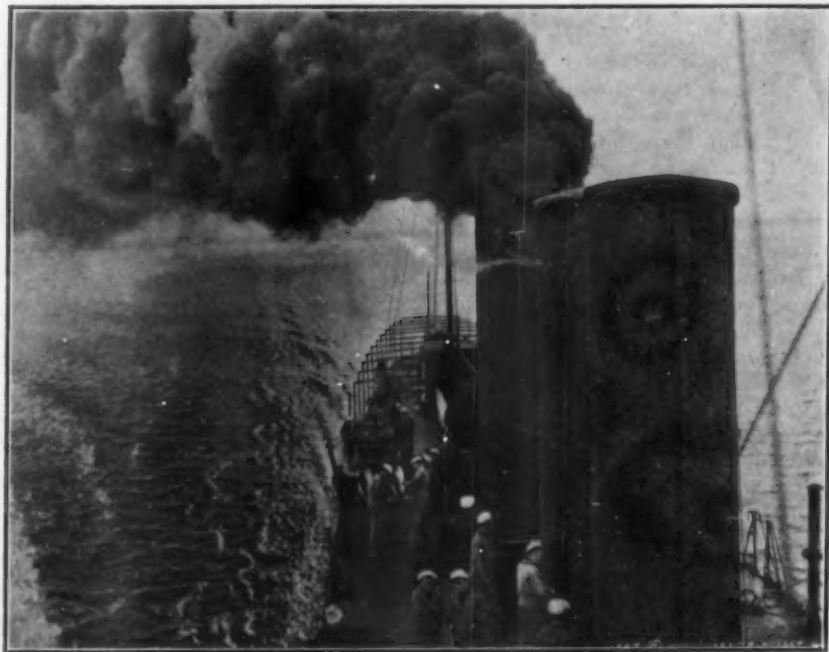
(3) There is being established at Columbia University a training school for Naval Reserve Radio Operators, where men, who have enrolled and who are promising operators, will be sent to learn telegraphy and Navy ways of handling radio sets. If you can send and receive ten words a minute and are otherwise qualified, you may be enrolled as Landsman for Electrician,



ONE OF THE CODE ROOMS AT MARE ISLAND, CAL.

with the pay of \$32.60 per month; if you can send and receive 20 words a minute, and are otherwise qualified, you may be enrolled as Electrician 3rd class, with the pay of \$41. per month.

ship. This subsistence allowance begins when you are assigned to this duty and is credited daily up to and including the last day of each month; and is payable on the first pay day of the following month.



For those who are looking for action, these ships need operators

Applicants possessing exceptional qualifications for radio operating, and otherwise qualified, may be considered for enrollment in a higher rating.

(4) While under training at Columbia University you will receive in addition to your regular monthly pay, an allowance of \$1.25 per day in lieu of the ration that would be furnished if you were on board a

**THINK IT OVER**—figure out how much of your present pay you save and compare that saving with the Navy pay, which is **CLEAR MONEY**, and remember you are getting opportunities for advancement in your profession, in handling up-to-date material, under trained Navy men, who know what the Navy offers.

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Application Blanks for the Naval Reserve were printed in the July QST. Questions concerning enrolling may be directed to Editor of QST, Hartford, Conn.

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## A Rotten Dream

*By The Old Man*

**W**ELL, Sir, it's getting me, too. I have suspected for some time that closing up amateurs was having an effect upon their think tanks. Now I know it. I am going bughouse myself. Listen to what went through my disordered intellect last night.

I had been to a meeting of the Radio Club and Radical and Final had edified us with a ten round go without gloves on the subject of external capacity effects and when I got home I repeated the performance on a section of mince pie. Maybe this had something to do with it, but anyway, I dreamed a rotten one. I will put it up to the fraternity as a record. If any one can beat it, I will eat my oscillation transformer.

I dreamed I had some kind of an old he condenser of about one man's size microfarad capacity. I thought I had built it in the bath tub and had filled the latter with black oil. It was connected to something brand new in the way of a gap, consisting of two 24 inch diameter silver disks polished so as to act as mirrors. A big variable inductance gave control over the frequency of oscillation. An "external capacity effect" seemed to be hooked in somewhere and this external capacity business had a terminal which bore the terrible title of Influence Terminal. Some hook up, what?

Well, my wife and I seemed to be monkeying with this outfit and it somehow seemed to be something I had been struggling with for years. We were getting it ready for its first test, and if it worked it was to shatter all human standards at one fell wallop and make me famous and rich enough to have a separate pair of suspenders on every pair of pants I owned.

The idea was that resonance could somehow be made to hetrodyne, or give beat effects, like the undamped stuff. When you caught hold of the mysterious "influence terminal" your personal magnetism

set up an ether strain and impressed itself on the capacity and this so effected the discharge across the mirror gap that a picture of you and your surroundings appeared on the polished surfaces. (Can you beat it?)

I realize how nutty all this sounds, but it seemed perfectly fair and square at the time, and it is nothing to what is coming. Believe me, friends, this was a real one.

When we had made things tidy around the thing and had traced each wire to make sure it was hooked up right and would not burst up in a blaze of fire when we threw the switch, I took hold of the influence terminal with the external capacity ding-bob on the end of it, and told the old lady to start her up. I was to test it out with my own picture, which I knew pretty well. There was a buzzing around noise and suddenly a flash of fire at the mirrors and, Eureka! The picture appeared. There I was apparently looking into a regular mirror. All the surroundings were true to life and I noticed there was no distortion of foreshortening, and no blur. Everything was fine and the "grand and glorious feeling" of things coming my way was recognized.

The inductance was set for resonance, during this first test and consequently, the picture showed present time. It must have been pretty good resonance because it was a dead heat every time between my motions and the motions of the image in the mirror. Then we decided to take out some of the inductance and speed up the frequency and do the advance business, and take a look into the future. I took out a good chunk of inductance while I was at it, so as to get well ahead into the not-yet. Just as I had fixed it, the phone rang and I answered.

It was a young lawyer friend of mine who was connected with the District Attorney's office in our town. He wanted to ask me about some wireless dope he needed



for the District Attorney. This was O. K., because I had helped him out before. While I was talking to him I glanced over my shoulder to make sure nothing was going wrong with the machine. My eye caught the mirrors and there I saw a picture that started to bring the hair up on the back of my neck. There was Jim, my lawyer friend, in the mirrors, much older, creeping cautiously down a road, with a pistol in his hand, looking carefully on all sides. Waiting for him behind a wall were a couple of thugs also with guns. There was going to be something doing in a minute, and somebody was going to get hurt, most likely. I didn't want it to be Jim. It was like a movie, except that it was the real dope and as such it got my goat. (I imagine an undigested hunk of mince pie was putting up a gallant fight about that time).

Just as things reached the pass where you squint your eyes and brace yourself for the shock, Jim said good-bye, hung up the phone, and the picture vanished.

I was some shook, what between the picture outside and the mince pie inside, and I dreamed I sank back on the chair to think matters over.

Now friends, as I said before, if any of you can beat this for a dream, the cigars are on me. I shall tell you the whole thing dead straight, just as it happened. I shall probably have to consult a horse doctor when I finish and take a treatment for shattered nerves, and a disordered stomach.

As I sat there all shot to pieces, I dreamed I began to analyze the various possibilities of my machine. Just listen to the line of dope that floated through my nutty brain.

It seemed the machine was a howling success. It would make me everlastingly famous. It possessed the power to examine with scientific accuracy and microscopic fidelity the Past, Present and Future of any one. It was sensitive enough to respond to the feeble influence that came in over a telephone wire and all I had to do was to call the victim on the telephone, adjust my inductance to lag behind resonance and I could examine every action of their past. By addition of inductance, thus causing the oscillation frequency to advance ahead of present time, I could

lay bare their future with equal certainty and accuracy. As an assistant to a detective agency, my machine would be a wonder. It would command humanity. No guilty action of the past would escape detection and every coming guilty action of the future would be foretold. It supplied an unerring recording finger which would point to what had gone before and likewise a prophetic finger which would show up the future equally positively. (Gosh a'mighty, think of the consequences if such a darned business should some day be built!)

Well, this sort of stuff went floating by in clots when the phone rang again. I started the machine before answering, so as to take a "once over" of whoever it might be. It was Final Authority. Well, thinks I, we will proceed to get your number, young fellow. The inductance was set for advance and as he talked, I glanced at the mirrors. There he was. He was grey and hungry-looking. Spectacles had taken the place of eye glasses. He was writing—copying something out of a book. An author, by Heck! A writer of scientific slush for some technical journal. Earning fifteen a week on the average. A name well known to thousands of readers, and a bank account which has never been beyond three figures. Poor Final! There he was. A literary hack. Wouldn't you have known it? Knows down to a hair the formula for calculating to an error of less than one-tenth of one per cent the electrical capacity of an ice cream freezer, but can't get a job to save his life.

He finished and I hung up. I was disheartened. This looking into the future was a proposition likely to have a kick-back in it. After composing myself I decided to have a crack at our other champion, the irascible Radical. He would certainly have a future with some bite in it. My wife called him and gave him a line of bull about something or other while I watched the mirrors. When he hooked in the spark sputtered and spit but finally settled down into a fine clear picture. There he was. He was stepping out of a big limousine and walking briskly into an office. Over the door I saw a sign. It read: "Radical, Warty & Co." For the love of Mike! This great, big plant was Radical's? And his partner, the fellow



with the wart on his nose, and who at club meetings gave every evidence of not being mentally capable of understanding the function of an oscillation transformer! Great Heavens! The picture changed. Radical was seated in the office with "President" on the door. And, by Heck, there was Warty in the one with "Treasurer." The wart was still there, but not so noticeable, and he looked just as sleepy as he used to at Club meetings. But he evidently knew how to operate financial accounts even if he didn't a wireless set, and this skill had been made good use of by the belligerent gentleman with the Radical ideas about ground leads, whether it was accompanied by warts and ignorance regarding oscillation transformers or not.

When Radical hung up, my wife and I gasped. It was probably the mince pie calling for water, but it went with me as a good manifestation of emotion. This was getting fierce. Here we were in our little house calling up the unknown forces of nature in a way that broke all precedents. It scared me. I knew there would be a terrible kick back sooner or later. These things always end that way. They look as though they would get you by, but all of a sudden you realize that the law of the conservation of energy still is in force, which is equivalent to saying that who goes up must come down, and when the readjustment comes it usually smashes something. I was, consequently, leery, and prepared for and fully expected the worst to happen. I was not to be disappointed.

As my wife and I sat there staring at the works of this infernal invention, I thought she reached over to straighten one of the mirrors. As her hand approached the darned thing, a flash of blue flame shot out and with a report like a ton or so of dynamite going off it volatilized her. In an instant she was incinerated and the residue was a little scum of brown ash on the floor. All that was left of my little "Mother" you could flick under the rug with a pocket handkerchief. I could think of only one remedy. But one simple thing seemed left to do. I blush as I acknowledge it. It was to run. To run like—, well, it is not proper for me to say how fast it seemed to me to be desirable to run.

But I could not get my legs under me. I struggled with the frenzy of terror, but those dog-gone legs would not respond. Every hair stood up on end and the cold chills were oscillating up my main line at a million a minute. I held the damnable "influence terminal" in my hand and realized the mirrors were busily engaged in showing up my own future. There I was in the Radio Club room. Final was boring a hole in my abdomen with a three quarter inch bit to insert the terminals of a volt meter to measure my potential. The husky President was rolling up his sleeves preparatory to the better swinging of a monstrous gavel. The intention was to mash me in the face with this in an attempt to get square for things I had written about him in the past. A little cuss was off on one side connecting up hundreds of dry cells to a spark coil and after Final got through measuring me this "little boy with the spark coil" was to even up his account with me by discharging the secondary of his spark coil in the three quarter inch hole. In the background I saw Radical. He was watching and thinking. I knew he would hold his turn until along toward the end after he had seen how the other things all worked and had absorbed a few ideas. Warty was fixing up a treatise on oscillation transformers which he was to read to me and which later was to be boiled, the extract from which I was to be made to drink while boiling hot.

The gink who took some of the things I said about Rotten QRM to himself, had a fire engine siren, a steam foghorn and a rapid fire gun, all harnessed together and he was only waiting his chance to touch the outfit off. A gang of youngsters off on the left had a section of what I recognized as my pet mast. They had it rigged on my stomach and choked down at the short end while they jounced up and down on the long end of the lever. This was causing the torture in my middle. I surmised the kids were some of those who believed in scnding after 9:00 p. m.

Then I saw Radical advance, and I knew my time had come. He had an ugly looking business which I knew must be an "external capacity effect." It consisted of what seemed to be a lot of metal plates. Half of these he placed up against my

front and the other half against my back. I thought of the explanation of the dielectric of a condenser—how the opposite charges attract each other and squeeze the glass. If the voltage is sufficient, the glass is crushed. Was Radical going to make me the dielectric of a condenser and crush and finally puncture me? The answer appeared in the form of a gang of men dragging in a couple of 2 inch conductors rigged with 24 inch petticoat insulators and labelled—"dangerous: 500,000 volts." When all was ready, he took command, and drove the crowd all back out of the way like a cop at a fire. When everybody was out of harm's way, he started up an omnigraph and then "beat it" for safety. I understood. The clock work in the omnigraph was to liberate a switch when he had reached a safe distance and throw 500,000 volts into me. Something snapped—a blinding flash of flame cover-

ed the whole face of nature. I felt the awful squeeze beginning, and with a mighty jerk I gave one awful heave—.

The next thing I knew, I was lying on the floor beside my bed, the baby was squalling her head off, the lights were lighted and the little wife was screaming, "John! John! wake up! wake up, John!"

I got up, sat on my bed and started to ask if the fire engines had come yet, but changed my mind and made it a drink of water. This straightened me out and after assuring the little wife that it was only a nightmare, the lights were put out the incident declared closed.

But, so help me Bob—no more mince pie after Radio Club meetings for mine. And if anybody ever starts talking external capacity effects to me, I sit up all night.

Well GN, OM and 73.

## That Wouff Hong Again

By an Active Member of the A. R. R. L.

In a recent number of QST, our editor stated that he was being pestered half to death for wouff hong. Oh, yes, there really is such a thing as a wouff hong, but I regret to say that it has not yet been placed on the market, so don't pester our already overworked editor for it. It is too recent an invention to be for sale yet.

A wouff hong is an instrument to be attached to a receiving set for the purpose of eliminating static in the phones and to eat up those broad wave dogs that the Old Man had so much trouble with in his last rotten article. If the Old Man had had a wouff hong, that "gink" would not have drowned out 8NH and the poor cat would not need to have been spat upon the second time.

A very good friend of mine has thoroughly tested out one of these wouff hong and reports that the animal actually eats up all of the QRN and a large portion of the QRM also. It seems to have a special liking for broad waves and eats them up clean, therefore I would recommend it to the Old Man. One night when QRM was too much for most of us amateurs, this friend of mine worked right through it all and next day calmly announced, "No QRN in my phones last night while using that wouff hong". Three great problems have been solved. How to get rid of QRN, how to reduce QRM, and what a wouff hong is. It is a dream no more. Hurrah for the wouff hong!

### VERMONT HEARD FROM.

R. H. Shaw of Rutland, Vt., sends in the following list which were heard at 1BN, during the week ending January 27th, 1917: 1ABO, 1ZM, 1ZF, 1ZD, 1ZL, 2AGW, 2AGJ, 2IM, 1RS, 8ALE, 8EG, 8ZM.

Any station hearing signals from 1BN, will confer a great favor to me if they would drop me a postal.

### FROM 9ANU.

Stations heard by 9ANU, Ray E. Barnett, 4346 Genesee St., Kansas City, Mo.: 9ZN, 9ZF, 9ZK, 9YO, 9XM, 9WG, 9AHO, 9DV, 9AHU, 9GY, 9JL, YJ, 9NN, 9ABD, 9HU, 9JW, 9QJ, 9AMI, 9AMT, 9LQ, 9HX, 9VS, 8AEZ, 8BV, 8AX.

A card from any station hearing me at a distance of 100 miles or over would be much appreciated."

## Double Coplanar Antenna Systems\*

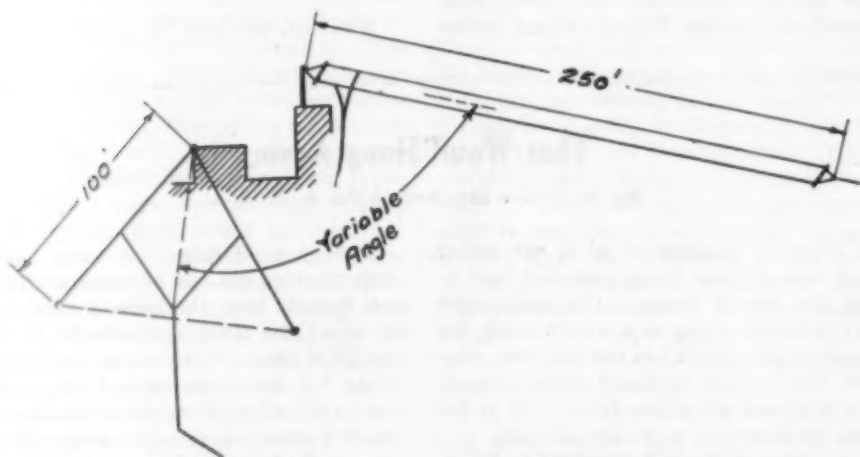
By Walter S. Lemmon

**B**EFORE the passage of the Radio Act, "plain aerial" transmitters on long antennas were in general vogue among amateurs. With the advent of these regulations it very soon became evident that efficient radiation on two hundred meters with a long antenna was unattainable. Another great difficulty was encountered in attempting to tune a spark coil set by means of an oscill-

tal plane as far above the earth or metal roofs as possible.

At first glance it would appear that the writer's system is identical with the so-called Lodge Muirhead system which employed one antenna very close to the earth (a capacity earth) and the other elevated above the earth. However, in the system described above, both antennas are elevated to the same height on the same hori-

-FIG. 1.-



ation transformer to emit a single wave and still obtain appreciable radiation.

Some years ago it was the good fortune of the writer to find a solution of this problem and today not a few amateur stations in New York and vicinity have used the scheme with great success. The system involves, as its name implies, the use of two fairly long antennas not necessarily of equal length however. The antennas are suspended in practically the same horizon-

zontal plane and the arrangement resembles in general features the famous Hertz oscillator on a very large scale.

In the first experiments an antenna about 300 feet long was used in conjunction with one about 250 feet long. Exactly equal lengths were not used because of inconvenience in placing poles, etc. Each antenna was flat top and suspended about twenty feet above any intervening roofs. The fundamental wave length of the large antenna separately to ground was about 580 meters while that of the combination was only 420 meters. The tuning of the transmitted wave with spark coupling was quite sharp, being far sharper than with a simple antenna and ground. The

\* Special Contribution to the Proceedings of THE RADIO CLUB OF AMERICA.

Copyright, 1917, by The Radio Club of America.

large antenna was shortened to about 250 feet (fundamental wave length of about 480 meters) and a small antenna about 100 feet long (fundamental wave length of about 200 meters) was used with it. The fundamental wave length of this combination was about 260 meters. The small antenna was arranged so it could be swung around in different directions as shown in Figure 1, and it was found by means of a wave meter and observation at other stations of the emitted wave, that when the angle between the antennas was acute the wave was very broad and two peaks were discernible. As the smaller antenna was swung around to an obtuse angle the tuning became very sharp and only one wave was emitted. When the angle between them was  $180^\circ$  sharp tuning still held but because the system became directive, this position was discarded. In order to so reduce the fundamental wave length of the combination that the station could be tuned to emit a 200 meter wave, the length of the smaller antenna was reduced to 80 feet, and the final arrangement of the antenna system was made as shown in Figure 2.

Coupled transmitter circuits were next tried with the antenna system described above. With directly coupled circuits as in

two antennas were found to be equal. This is quite an unusual performance for a small set such as used and demonstrates the capability of such an antenna system to give a lower decrement than a single earthed antenna. It might be added that much stronger signals were received from this system when tuned in this manner than when spark coupled. Therefore, the recommendation is made to use coupled circuits with this system to obtain very sharp waves and maximum amounts of energy in antenna in one wave.

Some of the results achieved throughout the winter of 1915-16 at several New York amateur stations where the above described system has been adopted might perhaps be of interest. These results were obtained without the use of a regenerative audion receiver in any case. Employing this system one station using a 1-2 inch spark coil on storage cells maintained communication 10-15 miles. The signals at this distance were easily readable in spite of the unusually bad interference prevalent in this vicinity. During the winter at another New York station using about 800 watts input many of the stations in the middle west (Ohio, Indiana, etc.) and the New England stations have been worked re-

-FIG. 2-

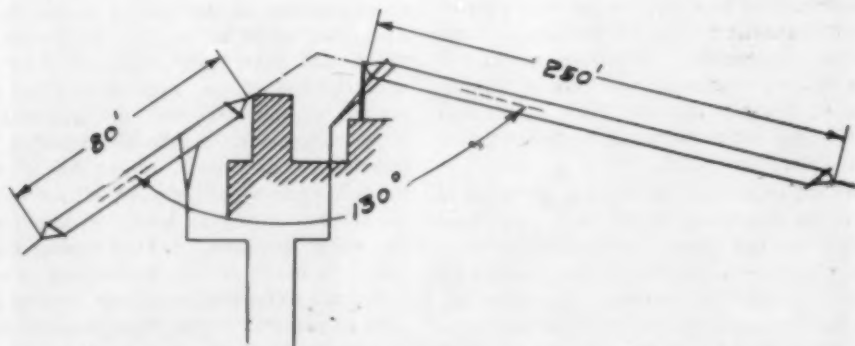


Figure 3 only one peak was discernible and a very sharp wave with a logarithmic decrement of only 0.08 was found when a quenched spark gap was used and the coupling was fairly close. With a straight gap the decrement was still only 0.11, which is well within the value (0.2) allowed by law. The currents measured in the leads of the

peatedly. The western stations report that the signals from this New York station have been very clearly received and the wave was quite sharp. Using about 200 watts input the writer has worked under almost all local conditions of interference with all stations within a radius of 25 miles and under fairly favorable conditions with



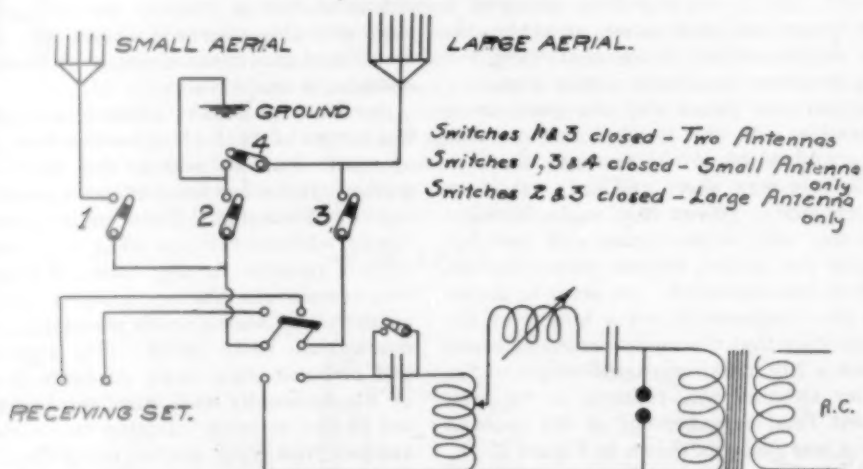
stations up to 50 miles, using the 250 foot—80 foot combination of antennas previously described.

Such an antenna system can also be used with equally good results for receiving signals. The advantages of its use have been found to be: (1) Stronger signals from amateur and other low wave stations than if

its fundamental, but not to such a marked degree.

As regards practical results, almost all of the Atlantic coastal stations, as well as distant ship stations have been copied with as strong a signal as when either the large or small antenna was used alone and the sharper tuning with the double antenna

-FIG. 3.-



a single antenna were used. Even if the single antenna has a natural wave length of 200 meters or less the use of a double antenna brings in the signals much stronger. (2) Much sharper tuning than when using an earthed antenna. It will be remembered that sharper tuning was attained in transmitting and this feature is present also in receiving. Weeding out of the many large commercial stations in the vicinity of busy ports like New York was found to be far easier than when using an earth connection.

There is one slight limitation, and that is that these comparisons are only very favorable when the wave length received does not too greatly exceed the fundamental of the double antenna system. Excellent results have been obtained with distant stations on 200, 600, 1000 and up to 1500 meters with a combination whose natural wave length was about 280 meters. On very long waves, however, (above 2000 meters) the signals were weaker than when using the large antenna alone. This effect is also experienced when any small plain antenna is loaded to a wave length far beyond

system rendered greater freedom from interference. This comparison can easily be made by the manipulation of a few switches so that the antennas can be used separately or in conjunction. Such an arrangement is shown in Figure 3. Messages from stations as far distant as Colon, Panama, and ships in the Pacific Ocean near the Canal have been copied in New York with the use of the system described and a simple audion detector, not regenerative.

In conclusion, a few suggestions as to constructional details might be of value. In this system, no part of either antenna should be closely adjacent to any part of the other antenna, or flat tuning will result. In other words, the centers of capacity of the antennas should be kept as far apart as possible. The objectionable directional effect of two antennas at an angle somewhat less than  $180^\circ$  to each other may be obviated by using an angle somewhat less than  $180^\circ$ , or say  $130^\circ$ . If the two antennas do not bring the wave down to 200 meters a series condenser may be inserted in the larger of the two in order to lower its natural wave length without seriously broadening the wave.



## Star of the Second District

This article and photographs were promised before the closing up. Even now it is most timely. 2PM is probably the most efficient station in the whole East. Take some suggestions to use in the new outfit you may be planning.

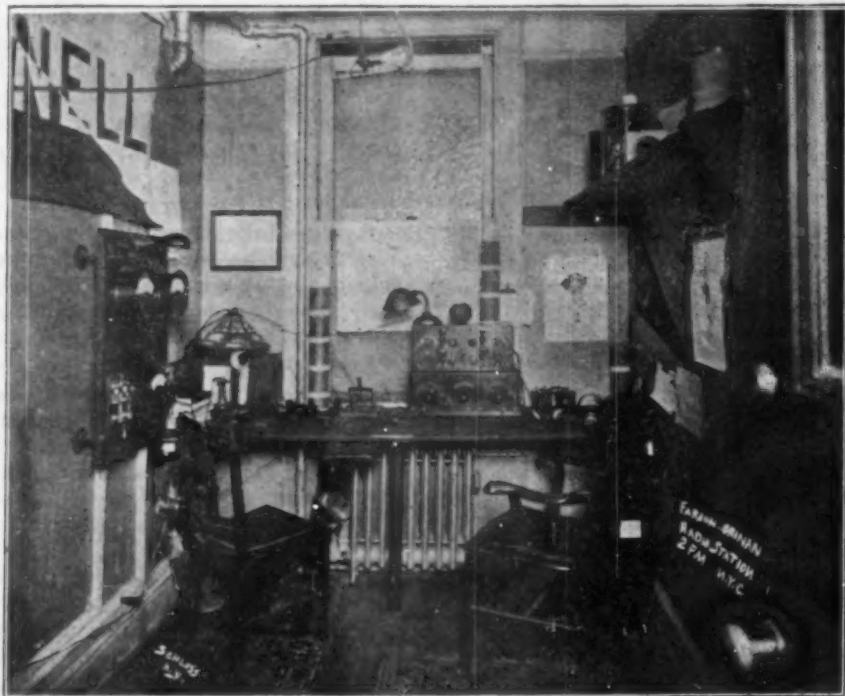
—Editor

**T**HE transmitter consists of a 1kw. 60 cycle motor generator, a 1kw. United Wireless transformer, 10 copper-plated Telefunken Leyden jars and a Clapp-Eastham oscillation transformer. A synchronous gap mounted in the coupling of the generator is employed.

we are deeply indebted for valuable assistance rendered in the installing of our station.

The radiation never exceeded 2.5 amps, probably due to the fact that we worked on a wave so near the fundamental period of the antenna.

The receiving is of the regenerative



The jars are connected in series parallel and the resulting low capacity made it impossible for us to draw more than 450 watts. This arrangement was necessary to allow us to operate on a wave length of 200 meters with a decrement of .09, as tuned by Mr. Harry Sadenwater, to whom

type employing a one-step amplifier.

The switchboard contains the necessary meters and switches. The field regulators are mounted in back of the generator and cannot be seen. Starting box is under the table.

We wish to call your attention to the

fact that this is the only station located in the heart of New York City that has done any long distance work.

Enclosed you will find a list of stations outside the second district with which we have actually exchanged messages.

5BV in Little Rock, Arkansas, reports our signals very QSA. Direct communication has been established with 9ZF of Den-



ver, Colorado. 9LO of Kansas City, Missouri, reports us QSA and Mr. Farrington of Los Angeles, California, has heard our signals also.

Stations worked by 2PM since January 1917.

1ASE, 1ASR, 1DK, 1IZ, 1SJ, 1VN.

2AGJ.

3AEP, 3AFA, 3AK, 3ATR, 3NB, 3NG, 3PC, 3UF, 3XJ, 3ZS, 3WM.

8AAK, 8AEZ, 8AFO, 8AHN, 8AMG, 8AOF, 8ARH, 8ASG, 8CO, 8CS, 8ED, 8EG, 8JA, 8JX, 8JZ, 8LE, 8NH, 8PA, 8QB, 8QK, 8VF, 8VX, 8XE, 8YI, 8YO, 8ZF, 8ALE.

9AAB, 9AAR, 9ABD, 9ALM, 9AU, 9BJ, 9CF, 9DB, 9DC, 9DK, 9EG, 9GJ, 9GY, 9HQ, 9IC, 9JI, 9LR, 9KR, 9NN, 9NW, 9ON, 9PC, 9PF, 9PI, 9QR, 9RW, 9VY, 9WG, 9WO, 9XM, 9ZF, 9ZL, 9ZN.

Mr. A. F. Pendleton, Senior Operator on the S. S. Manchuria heard our signals while 2100 miles East of Nantucket.

The last messages we handled prior to the closing of the station were six sent to 9ABD and four to 9PC, all sent the night before taking down our aerial.

Sincerely,

Faraon—Grinan.

## AS IT WILL BE IN 1918.

Stern Parent:—So you want to marry my gal, eh?

Suitor:—Yes, sir; please, sir, I do sir.

S. P.:—Wal, what have you got?

S.:—I have a good outfit; special license for 500 meters; a Barfonie Receiving set, and a Koshby single-twist prelixifier.

S. P.:—That 's all right 's far as it goes; but where does my gal come in?

S.:—Oh, I've got an extra pair of phones!

S. P.:—You have, eh? Wal, now, I'm a practical man, myself, an' I know you can't live on love an' a Special license, nor yet an extry pair of phones. What else you got?

S.:—Er-Really, er—I do not like to appear to boast, nor do I wish to seem unduly like a bloated aristocrat; but I have seven sacks of potatoes, and five baskets of string beans. My father has put a clause in his will, leaving me all his onions and cabbages. These I intend to settle upon Susie if you—

S. P.:—Take her, My Boy, take her. Wealth such as yours, and your membership in the American Radio Relay League make you one man in a million. God bless you both! Hey, Susie! Come on in; you can have him!

(Soft tones of a Wireless Telephone playing the Mendelssohn Wedding March.)

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## A SPLENDID RECORD.

Mr. Runyon, 2ZS writes: I have just checked up the traffic handled by this station for the six months October 1st, 1916 to March 31st, 1917, and thought it might be of interest to you to know that the total sent and received was 1,404. It is also interesting to note that my special license went into effect March 3rd., and that during this month 502 messages were handled, nearly doubling the previous high mark of 283.

## MASTS

By S. Kruse

*As a general proposition, the mast of an amateur is a lie.—From the note book of a Radio Inspector.*

IT was about the fifteenth of last December when the inspiration for this yarn put his head in at the door and asked if I would help him put up a mast. I did not recognize him as an inspiration at the time as he was undersized, taffy haired and had no eyebrows worth mentioning. Being hospitable by nature I invited him in and asked for details. He sat on the edge of a soap box where the spare rotary left a little room and said that he had a wireless station. Then he took another breath and said (all in the aforementioned breath) that he wanted to put up a high aerial and that he wanted to have a mast to hang it on and that he wanted the mast as high as he could get it and that he had bought the smallest size of lumber so as to get a lot of length and that he had 70 feet of 2 inch x 2 inch Yellow Pine and that Matthews had picked it himself and it was all good wood and he had a lot of No. 14 wire for guys and a lot of guys were coming over Saturday to put it up and would I come over to tell them how to do it and to fasten the guys on it.

And with that he ran out of breath and conversation.

The last part of this amazing recital seemed to indicate a tolerably hazy notion of what a guy was, but I let that pass; for serious matters were to be considered.

It seemed pathetic that this youngster should have avoided the gladsome and innocent amusements of childhood and was about to defy the grim power of gravity and the brute forces of wind and ice before which so many strong men have gone down in ruin and humiliation. And I looked sadly at him, for I pitied him, and I spoke kindly to him and said that I would help gladly if the thing were possible but that I was not a magician and that even if I were it was not well to put pepper in fate's beer. There was more also concerning the weakness of 70 foot fishing poles and wind

stresses and the pull due to stretched wires and wind and ice loads, broken roofs, irate neighbors, the peculiar unpleasantness of taking it right down again the very next morning and a great many other arguments and reasons—but sho—it was just as useful as arguing with the neighbor's bull pup when he has decided not to let you come in at your own front door at 1 a. m.; yes, and just as satisfactory, both as to results and as to the amount of self esteem it enables the speaker of the occasion to work up.

And so I blessed him and sent him away, he banging the door as he went.

About three weeks after this I passed his house and happened to look toward the rear of the lot. I was in a hurry to get somewhere at the time, but do not know where, for I forgot right then and turned in to see that mast. It was there all right, and as nearly as I could tell at sight, it was about 70 feet tall. There was a set of guy wires about 5 feet from the top and another 15 feet down and a couple more at irregular spacings below that. They looked as though they had been put on pretty solidly and displayed no "bell-hanger's joints" but every blessed one of them lit within 25 feet of the base of the fishing pole and as Willy's father owned the place Willy had tied his wires to anything that came handy. Two of them went to a scrub elm in the horse lot and when any of the live stock took the rubbing treatment the mast went thru evolutions calculated to give a thinking person heart failure. The mast had the general shape of the voltage curve on a lightning line when the one K W Thordarson out at the end is getting off "Nr one Ck 27———" being the sort of an apparition that made you run back over the last day's eating to see what might account for it.

I persuaded the boss of the works to run the guys out about 20 feet further and straighten the mast a shade and then

went away quickly lest any of my friends pass that way and see me.

We have had two sleet storms since, and one tree-smashing wind, but that pole is still there. Yet it is written that a lie shall not live.

Then there is the iron pipe mast over at "B.M." That was not only a lie, it was a deliberate and malicious perversion of the truth. The thing consisted of three 20 foot lengths of 1 inch gas pipe put together with common screw couplings and set on end by using a convenient tree crotch as a shear. This thing had only two guys and an aerial to hold it, yet stayed for several years. Make no mistake—I do not mean two sets of wires, but just two wires—two little No. 14 fence wires run back from the top of the mast and a No. 14 aluminum aerial wire running in the other direction—on a 60 foot mast.

That mast fell. It fell because the owner attempted to remove the aerial. It is not known whether he intended to have the two guys hold it in place.

After that it is of no especial use to talk about a 105 foot mast made of 4 inch x 4 inch Pine. There is such a mast and has been for the past four or five years, nor will I get a rise from any of the fraternity by referring to the sixty foot iron pipe mast that was erected by one man without aid, or the 115 foot boiler tube mast that two people erected altho it weighs 800 pounds or—wait! I have it now.

Supposing a radiobug came to you and proposed quite seriously to erect a 70 foot mast of 28 gauge sheet metal. You would not think he was insane; you would think that you KNEW he was insane and probably would reach for the 1914 Marconi year book or the message pin so as to have something handy in case he became violent.

And you would be quite right, for it is not possible to build such a mast; that is it is not possible according to Morrow on "Applied Mechanics and Strength of Materials" nor according to the "Standard Handbook" but at times I wonder if they are right, especially after I shinned 25 or 30 feet up the 60 foot "tin" mast at 9LQ.

Just to make real sure I shall go down to 9DM tomorrow and take another look at the 70 foot "tin" mast there, and write Burrows out at Halstead and Beasley over in Topeka who have similar masts.

Certainly at first sight it seems a shade startling to think of setting 60 or 70 feet of 2 inch corrugated, galvanized "leader", downspouting, rainpipe—whatever you wish to call it—on end and hang a heavy aerial on the seemingly frail structure, but experience has shown that when put together with tight fitting sleeves two or three feet long and guyed at each joint, such a mast is amply rigid for all ordinary aeralials and mast heights and has the virtues of lightness, good appearance and cheapness. Come to think of it, there is not so much wrong with a \$3.75 mast that has lived through all sorts of sleet and wind, looks better than any other mast I have seen and is light enuf so that one can carry the base of it around in a circle even when the guys are pulling on it. The weight of mast and guys is a shade under 40 pounds.

When these facts were first related to me I also smole a knowing smile but, as the patent medicine ads say—a trial convinced me, and after two of us had stood on the center of a ten foot length of the pipe without producing any result but a slight bend I bought six lengths—and carried them home under one arm. My only regret is that there are not 30 feet more.

Not that I expect you to believe all this. Later I shall have to describe that mast in detail and possibly furnish pictures to convince the doubting Thomases.

For the present I will at least furnish a witness and will refer all the doubters to Trump of 9JW who has seen the masts at 9LQ and 9DM, Wilson of 9EP, Graham of 9ZK may be able to testify also; since the Adam member of the tin mast family was erected in Kansas City some six years ago.

The audience will now tune in 9LQ and try to detect a tinny quality in the note.\*

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\* Written back in the "good old days," before closing up.—Editor.



## In the Service

Here's a lively one by our old friend, Bill Woods (9HS). He has just begun to enjoy the service. Many of the old amateurs are with him. Look it over and consider enrolling yourself.—Editor.

Dear Eddy:

It is 1 a. m. and I am sitting—as I did almost every evening last winter—at my wireless set with the phones on. However, in this case it is not my set, but is the Marconi station at Manistique, Mich, recently taken over by the Government, call letters WMX. I am a 1st Class Electrician, Radio U. S. N. R. F. and am on the mid-watch. That is—from 12 midnight to 6 a. m.

The station is in a ———\*, and is fitted up with all modern conveniences, and as I look out the little window at the old moon, I can almost realize that I am home in my own little radio shack and waiting to hear 2AGJ call C. Q.

There is a good fire in the stove, QRN is absolutely nil, and there is no QRM at all. Believe me, O. M., it is some night for distance. I would give a lot if I could just give 'em one C. Q., but nothing doing. "it can't be done." Have just finished reading the last ad. in the May QST and it made me so "home-sick" for the long winter nights and wireless that I will attempt to describe my experiences of the last few weeks.

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In one of the "back" issues of QST, I remember reading about how some of us might perhaps have the honor of "tickling the key" at NAA., providing war was declared. As we all know, war has been declared. Shortly after this declaration, I presented myself at the "nearest Navy Recruiting Station" and declared my intention of becoming a censor for duty during the duration of the war. I was duly examined and passed the test in fine shape. The same evening several of us were given

tickets and "subsistence" money and told to report at the Great Lakes Naval Training Station at Great Lakes, Ill. We left St. Louis in high spirits and arrived the next day at NAJ. We were met at the gate by a formidable looking young man who told us to stand in line. He then separated the Reserves from the Regulars and marched us down to Barracks D. Here we were met by a very gruff and curt individual who told us to make ourselves at home and walked away. Thus left to our own resources we began to walk around. Barracks "D" was a very large room with innumerable canvas hammocks hanging just above our heads, and completely covering all available floor space were small folding cots. We asked several young men in sailors uniforms if there were any radio men there. They looked us over but did not seem to know what we meant by radio. Finally one fellow took us over to where three fellows were sitting, sewing buttons on their pants, and told us there were the radio men. We introduced ourselves and I prepared to have a regular "ham fest" with fellow amateurs. I asked one what his call was and he asked me what I meant.

After testing them out with a few words such as paragon and regenerative, I came to the conclusion that they did not know very much. About this time one of our party suggested that we all go over and take a look at the "set." In a very much awed tone of voice our new friends said it was not allowed, in fact, no one at all could go near the station. They said they had been there ten days but had never seen the station. This statement didn't sound at all nice, so three of us held a consultation and decided that we would boldly walk over to the station and see what

\* Deleted by Censor.



could be done towards viewing the set. After much hesitancy and each one telling the other to go first we finally started. We stood in front of the small building that housed the set, and looked up at the aerial, and decided it was some class.

After we had looked the aerial over completely, we gathered up our courage and walked right in the building. We confidently expected to be ordered out at once, but much to our surprise an officer came up to us and very nicely inquired if we were radio men. We quickly informed him that we were, and even insinuated that we were pretty good ones, too. He didn't pay much attention to the last remark, but led us outside and assigned us to a tent, which, we were told, was to be our home. We had no more than got settled and picked out the cots we were to call "ours" for several weeks, than we heard a great commotion and loud cries of "fall in for chow." We followed the crowd and were placed at the end of a line of fellows, all in sailor's suits. A sharp command was given and we commenced to march.

We all were in step and the tramp, tramp of the feet sounded rather soldier like. In fact, I rather liked it, and my spirits rose several notches. We marched into a big room with long tables and a "place" set every foot or so. Each man stood in front of his place; at the command "seats" we all sat down on little stools and commenced to eat. I didn't care much for the dinner nor the service, but the way the older men ate was a revelation. The man next to me ate all of his dinner and then requested mine. I gladly accommodated him, and in a moment he had cleaned the plate. As the men finished they got up and walked out. At the door, as we came out, was Mr. Reiling, our superior officer, and the man in charge of the radio station. He explained that he would have to take us back to the station, as the sentry would not let us pass upon seeing we were in civilian clothes.

It has just occurred to me that no sentry stopped us the first time; guess he wasn't on the job.

At any rate, Mr. Reiling took us back, and on the way I timidly asked him if we could see the set. He said most certainly, and showed us the whole thing. He

took us in the operating room. For certain reasons I will not describe the apparatus, but everything was the latest. Upon the completion of our inspection, Mr. Reiling informed me that I was to take watch from noon until 6 p. m. the following day. We will skip the night, as I did not sleep much, but at noon the next day I took my place on the spark set.

There was a good deal "doing," mostly lake boats and stations nearby on the lakes. I copied all I heard and entered it in the log book.

After a while, the novelty began to wear off. I was taking things kind of easy when I heard NAJ called three times, followed by the sign WME. I called Mr. Reiling and told him Milwaukee was calling us. In the most matter of fact way he said "all right, answer him." If Mr. Reiling knew how nervous I was he would have answered them himself. However, I called WME and signed NAJ. I took his message easily and when he said 73 in the most amateur-like way I realized for the first time that I had had the honor of signing NAJ.

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#### HEARD AT 3RD DURING MONTH OF MARCH.

1ZW, 1DK, 1MO, 1ZM, 1ACK, 1CM, 2AZ, 2ZL, 2ZV, 2IG, 2DA, 2WB, 2ZS, 2CI, 2CS, 2AH, 2PM, 2DM, 2QV, 2ZM, 2JV, 2CE, 2PC, 2NC, 2ALI, 2PM, 3NT, 3PC, 3RS, 3NB, 3AUC, 3AR, 3TY, 4BF, 4BD, 4AA, 4BE, 4BX, 4BI, 4EI, 4BC, 5AM, 5DU, 5BV, 5ES, 5AP, 5AX, 5AOL, 5ASG, 5JZ, 5NQ, 5APM, 5GA, 5PA, 5ZZ, 5XA, 5YO, 5CO, 5AEZ, 5NH, 5ZX, 5IC, 5OM, 5AFW, 5OE, 5AHD, 5MP, 5AEH, 5MD, 5AEH, 5UT, 5LE, 5NF, 5UP, 5ED, 5JX, 5PG, 5RK, 5EG, 5RV, 5EM, 5VM, 5TA, 5WG, 5NH, 5AIH, 5PC, 5GJ, 5AIM, 5QR, 5XN, 5ME, 5UC, 5ZL, 5HX, 5ABD, 5QV, 5WW, 5GL, 5MY, 5NW, 5AAK, 5GA, 5PK, 5PI, 5ST, 5LO, 5DK, 5ABV, 5GC, 5ACM, 5AZ.

The following stations were heard at 2DA during March: First District, UJ, DK, ZM, SJ, CM, ASE, PM, ABF, FG, AIU, EI, ZS, VT.

Second District: AJO, AWT, ZS, CB, PM, ATR, YU, AAU, AFA, AGJ, AUF, BO, ANJ, FS, ZM, WT, EX, CE, RL, CS, ATQ, MX, AFN, QB, MA, AHN, AQT, ARS, JU.

Third District: PC, AZR, FK, RS, SV, ZH, TY, RO, AFA, UF, ATR, AEP, LJ, ATE, QU, NB, AWA, WN, AI, EP.

Fourth District: CK, BD.

Eighth District: ED, ZP, ASG, CL, CO, UX, JL, AEM, NH, AIY, AAK, AEZ, YO, PL, JG, CS, JZ, ANO, PA, ZZ, APM, OT, NG, UT, AOF, AFW, AMG, MC, IC, XE, AUL, VP, AHL, AJE OR, OM, QK, AOF, ED, KD.

Ninth District: PC, ZL, MV, KG, QY, KJ, ARS, QR, AIM, NU, HX, ABD, JI, AVK, AEV, GU.



## THE LADIES ARE COMING

When amateur wireless opens up again in these United States of America, things are going to be different. There will be several hundred of the fair sex scattered around among us. This means that we shall have to introduce several changes. We shall have to be careful where we use OM. What will take its place is not yet apparent. It will not be OW, from what we have heard from various young ladies. They do not take kindly to being referred to semi-affectionately as Old Woman. Some of them will let Old Lady pass, although there are others who object even to this. We would not venture to make a suggestion in such a delicate matter, but just the same, we fully expect to hear DG. This will sound pretty chummy, but in

wireless where you cannot see the other person, and where you never expect that you will see them, and where formalities are more of a dead letter than in anything else we know of, it might be that calling an unknown young lady dear girl, might be taken all right.

Language will have to be improved a little because, "keep out, you big Ham," will not be exactly polite when the ladies are around. We never have had much profanity in the air, so this will go as it is, but we fully expect to see a general uplift throughout the fraternity when the ladies join us. Here's to them, and it gives us great pleasure to extend the glad hand of fellowship when the happy day comes, and we all re-open.

## LEST WE FORGET

In this great and glorious mix-up which is going on right now, it is very easy to forget QST and our A. R. R. L. We are not complaining, because the tide has turned and is coming in again; but, it looks as though it was new material that was coming along to a great extent. This is all very fine and encouraging, but we want to see the old material stay in the game also. We were too good friends to let things slide. Whether you are in the Navy or the Army, or whether you have

stayed at home because of flat feet or other physical shortcomings, don't forget that we are still plugging along here at Headquarters trying to keep QST going and the A. R. R. L. intact. We need backing up and this backing up is not a hard thing to give us. It consists of renewing your subscription or putting in a good word here and there and inducing others to renew their subscription, and above all, doing and saying those little things which will help QST at the news-stands or the elect-

rical supply stores where the fellows usually go for their electrical magazines. The latter point is especially useful to us at this end, because the news-stands do not all know QST. They need to be told and we

all need to tell people to go to the news-stands and insist upon being supplied with QST. So we say, don't forget us, fellows, but push a little here and a little there whenever you get a chance.

## COMING BACK

Just as sure as shooting, there are signs that amateur wireless is coming back, as they say in the prize ring. We have noticed a little revival of interest for some weeks, but it was not enough to be sure of. The period of uncertainty has passed, now, and it is a sure thing. All along the line there are things happening which show that a lot of amateurs are returning to their old love. This is the middle of the summer season, too, and that means a lot more.

Of course we shall not be opened for regular operation until the war is over and all the machinery re-organized and started up. But, there will be a lot of experimental work done without radiating or receiving. We know of motor generators being developed for amateur use, also synchronous gaps, also impulse excitation transmitters and last but not least, very efficient spark coils with high pitch

tones and efficient quenched gaps. It is even already so well along that you can buy phantom antenna resistance. New wave meters and new hot wire meters have been described to us and it is said that they will be available at moderate prices. Next fall and winter will undoubtedly see a lot of experimental work in transmitting apparatus, using a phantom antenna and studying what is necessary to get high ampere reading in the antenna circuit. This will help our poor unfortunate manufacturers, who were the hardest hit of us all when the law shut us up. It will be the duty of every one of us amateurs to buy our supplies of those manufacturers who have been our friends in the past. They suffered very severely indeed and we will all lose a lot if they are not encouraged to hold on until we are again opened up.

## DATA FOR QST

Looking back to December, 1915, we can smile at QST Volume I, Number 1. We can see now the reason why we did not have any use for the bushel baskets we purchased to gather the subscriptions in. And along about that time we began to worry about material. We were afraid that the stock would run dry. How times have changed! Now we do the worrying on the other end. The good old QST family has come forward so strongly that our file of articles looks like a regenerative set; amplifying with a three step, working to the Nth degree and just ready to spill over. It's the honest truth, fellows—we have the best lot of wireless material which has ever been gathered together since Mr. Marconi started. By material we mean all kinds: photographs, calls

heard, construction, hints, communications and plenty more of the miscellaneous kind. We intend to use all this and more too, so you who have sent letters in be patient. Remember we shall publish all of it as fast as the financial standing warrants—that's up to you.

The first shock of closing up seems to have died off. Interest is coming back rapidly and the tide has changed for QST. We shall now begin to build up again and use all these fine articles. Bear in mind that just because we have more than we can at present afford to print, is no sign that you are to stop communicating. The Editor wants plenty of others so that he will be able to give you the pick of interesting material.

## GOING---GOING---SOON BE GONE

If any of you fellows who have not yet enrolled in the U. S. NAVAL RESERVE RADIO have any lingering thoughts about going in, you should hurry up and get started. There are signs which indicate that the great opportunity will not be held open forever. Like every other good thing, this one must be grabbed while it passes. Once it gets by, you can never yet another chance.

At this writing, the Navy will still accept good amateurs. We heard rumors to the contrary, but we investigated and found them wrong. Any of you fellows who want the best training in electrical engineering that is available in the country, and also want a chance to see the world and do your bit for your country, and on top of this, get good pay for doing it, send

in your names to us or your proper enrolling office. If you are in doubt as to the proper enrolling office for you to apply, write to us. We are fixed up to help you connect up properly and promptly. This is part of our "bit." But above all things, act promptly. It really is a splendid opportunity and you ought not throw it away.

If you have passed your seventeenth birthday, and can secure your parents' written consent, you are all right. Over eighteen, you do not need your parents' written consent, although it is well to have their moral consent and backing. Tear out the blank printed in last month's QST, fill it in and mail it to us. We will do the rest for you if you want us to.

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## FROM ONE WHO KNOWS

Mr. C. D. Tuska, Editor,

The QST,

Hartford, Conn.

My dear Mr. Tuska:

The QST is doing a great work, devoting your valuable space and efforts in your patriotic campaign for radio operators. You are serving two good purposes, by patriotically assisting the Navy, and by pointing out to the radio experimenters how they can best serve their country at this time, all in a most direct and practical manner. The pay of a radio man in the Navy is sufficiently attractive to speak for itself. I wonder as I read your article if your readers, the men we want to reach, understand and appreciate the fund of radio information, instructions and experience service in the Navy offers to ambitious radio experimenters? Do you think they realize the percentage of successful radio men today who were developed

through service in the Navy? The Naval Radio Service today is not perfect but it is the best in the world. It has always been a splendid training field, even in the days of coherers and tape recorders. Its training possibilities today are limited only to the absorbing ability of the man himself. Life on shipboard is clean and wholesome to the extent that I have been convinced for a long time that a man whom service in the Navy fails to improve and benefit was poor material to start with.

It is certainly to be expected these men and boys who see their duty towards their citizenship, which is a birthright rather than an obligation, will return to amateur radio activity so much better qualified their superiority will be undisputed.

The QST should receive the loyal support of every radio man, especially at this time.

H. C. Gawler

Radio Aide, Commander 1st Dist.  
Naval Force



## New Wavemeter

**A** VERY interesting wavemeter has been developed by the General Radio Co. during the last two months. It was intended primarily for use on submarine-chasers, but possesses so many unusual features that it bids fair to displace all others for some classes of work. The most noticeable thing is its small size, 8 1-2 x 5 1-2 x 5 1-2 inches. This, and a total weight of 4 1-4 lbs., makes it as handy to carry around as a book under the arm. The next thing that strikes ones attention is its simplicity. There are no coils to connect and disconnect—no charts to study over to get the wavelengths — no fussing around with phones and detector that won't stay in adjustment—no doubt as to the exact point of resonance and the exact wavelength instantly. This is a wavemeter among wavemeters for some things. It is essentially for tuning transmitters. The condenser is of quite large capacity, and of the type used in the Kolster Decremeter, which gives a scale of very uniform divisions. There is only one coil, which is mounted within the case, directly to one side of the condenser, and one terminal of the sensitive hot wire meter which is used to show resonance. The scale is also within the case, passing beneath a small circular window with a cross-hair, and reads

directly in meters. To determine the wavelength of a transmitter, then, all that is necessary is to turn back the cover, and, holding the meter somewhere near the helix, swing the handle around to the maximum deflection of the hot wire meter, and then read the wavelength from the circular window. No chance to go wrong or to make mistakes.

Binding posts and a simple crystal detector are also provided for use on received signals. The range of the meter for those supplied for submarine chasers is 300 to 1000 meters. For amateur work they would go from 150 to 650 meters. This particular wavemeter is the one that the U. S. Government specified for installation in the panels of the submarine chaser transmitters, the Sperry Gyroscope Company are at present mounting



them in their sets, at the suggestion of the Navy Department. The idea of the operator being able to instantly and at all times, see just what his radiated wave is, is fast finding favor among radio engineers, and will probably become more or less standard, just as the thermo-meter is displacing the hot wire meter for indicating radiation.

This little wavemeter should find a warm reception among the amateurs "after the war."



## Radio Communications by the Amateurs

The Publishers of QST assume no responsibility for the statements made herein by correspondents.

### WEST JOINS EAST

#### A. R. R. L. MEMBERS VOLUNTEER

Well, I am in the Navy now. About a month ago in a letter to me you asked me to give you all the "dope" about the 4th Class Naval Radio Reserves that I could, so here goes. Can only say that the fellows who are not in with us can't imagine what they are missing. Here is a golden opportunity to obtain a complete course in radio operation, see something of the world while working at our mutually beloved art, do your bit for your country and when it is all over come out financially, physically and educationally ahead. For those who are hesitating, let me say: "Hesitate no longer, but join before it is too late."

Let me tell you a few of the incidents which were part of our training at NAJ, (Great Lakes Naval Training Station). After completing the days work, which consisted of putting away three squares per day, and putting in a few hours watch on the spark or arc set we would gather in one of the tents in which we bunked and have an old time wireless gab fest. Reclining upon one of the cots perhaps could be seen "Swab" Bridges, otherwise known as 9ZL. Beside him might be seen our old friend, 8VP, or perhaps it might be our little red-headed 9GY, deeply engrossed in telling about the time he was heard in California. Strewn about the tent in many and varied postures were such lights as our "Bill" Woods of 9HS, Sparks of 9LT, the well-known 9ABD of Jefferson City, Mo., 9HN and 9DK of St. Louis, Bonson 9TM of Dubuque, 9QF of Waterloo, 9VY, 9ALM, 9PR, 9SA, 9SB and a dozen or so of the lesser lights. In the center of the group could always be found the pet of "Radio Row"—little Freddie Messing,

9AGK of Freeport, Ill., the youngest and also the smallest of the radio bugs. Signals of all frequencies and wave-lengths ran rampant in that tent. The QRM flew thick and fast. QRT, QRX and QTA could be heard dimly above the general hubbub. I cannot begin to tell you all that took place in those often held meetings. One can easily imagine what happens when amateurs who had been working each other and exchanging correspondence for perhaps years, come together. With the blowing of taps by the bugler, the meeting would come to an end, and the participating "stations" would shut down for the night.

The next day 9HN and 8VP sojourned for nearly an hour upon the top of NAJ's lofty tower. Swaying ever so little in the breeze, this massive steel tower afforded the observer a most extensive and beautiful view of the surrounding country for miles in all directions.

Such incidents as these marked my stay at this training station, and I can truthfully say that some of the most-enjoyed moments of my life were spent there. Of course, there was a certain amount of code drill and theory instructions and a small amount of drilling, these all being a part of our training.

One day it was announced that men were wanted to volunteer for Class 2 duty. Now Class 4 Radio Reserves are land station radio operators, while Class 2 duty is sea duty aboard ship. Many of the boys responded at once; others wrote home for the necessary permission. Those who changed over received orders to prepare to leave Great Lakes for the Naval Radio Reserve School at Cambridge, Mass. So the first draft of us parted company with our mates and set sail for the East, and here we are. Former amateurs from all

districts are here. Sixes and sevens from the West Coast, fours and fives from the South, our own dear nines from the Middle West, and of course, innumerable ones, two, threes and eights. It is some bunch.

Now, Editor, old top, that is about as much as I can write just now. It will be evident to you that I am not much good at writing description or narration, etc., and therefore wish that if you desire to print any of this you would re-write it in your own QST style. And, by the way, if you can use any photos or snap shots can forward you a few.

Well, N. M. for this time, O. M., and if I ever get near Hartford am going to drop in and see the home of QST. And don't forget to publish the list of stations heard O. M. Noticed they were omitted in the last issue. And until further notice please forward my QST to me at the address at the top of this sheet.

James A. Crowdus

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#### ONE FROM AMATEUR NUMBER ONE

South Wellfleet, Mass.

Editor "QST"

Dear Sir:

Very sorry to have to disappoint Mr. Geo. T. Droste, of 203 East 202 Street, but I feel that his letter to you calls for a few words. While I do not doubt that he might have been on the job when I was making all the "Noise" with the Five Kilo-watt transformer, still, the "GD" to whom I refer was not Mr. Droste.

The "GD" whom I worked in those days was a Mr. Donnahue, who was connected with the Police Department of New York City in some capacity, I think a Lieutenant. Anyway, I can remember one funny incident in connection with Mr. Donnahue which I must now relate. His friend "B," Mr. Birchard, told me thru the air that Mr. Donnahue was a very pleasant old gentleman, and I would be conferring a great favor on him, (Birchard), if I would treat the old gentleman with courtesy, and listen in for him once in a while and have a little chat with him. This I very kindly did, and must say that old "GD" and myself had many a pleasant chat, even though I used to have to strain my ears to hear his little coil. One dark night, Mr. Donna-

hue took it upon himself to pay me a visit at my house; I answered the door bell, and there stood a man nearly seven feet tall. It gave me such a shock when he announced himself as Mr. Donnahue that I could hardly speak. I had been figuring him out in my mind as a little old man. You can just bet. that even if I was over six feet tall myself, that I soon began to think that I guess it would be pretty good policy to treat the Gent with kindness and consideration, if I respected my Dome. He certainly was a real gentleman though, boys, let there be no mistake about that.

I thought that I gave Boeder quite a boost in my little story, and surely Mr. Droste must have skipped that part of it. I can assure you all, that I can hear you all working up here but, of course, mums the word; we are not supposed to admit it. Many and many a night I have heard stations from one end of the country to the other out here on Cape Cod. 8NH just roars in.

If any of you had greater fun listening to me talking with "JB" than I had doing it, I sure would like to know who it is. Why fellows, I would rather have stayed in nights talking to "JB" than gone to see a show.

Now as for the old transformer at the Massie wireless station on Jerome Ave., I must deny that I got away with it. Of course, I will admit that it was not my fault that I didn't get the transformer, because, when I heard that some enterprising amateur had gotten away with a tuner at the station, I immediately hired a team and went down with the intention of getting the rest of the station and bringing it home; but some slob had beaten me to it, and when I arrived on the spot, the place had been cleaned out. Even the stove was missing, and the station was up on rollers, all ready to be moved away to some ham's back-yard. If I had of been a day or so earlier, I think I'd have made it OK.

I would like to shake hands with my friend, Mr. L. G. VanSlyke, and I certainly congratulate him on his good work. I enjoyed your letter, old man, but am too blamed busy with the Government work here now to do much of any writing. Best wishes to you all. Irving Vermilya

### OUR PACIFIC COAST FRIENDS ARE DOING THEIR BIT

It may be of interest to you and your readers to know about some of the receiving work we are doing at this station, as we believe we have established some records.

Nightly, we copy KHK, Wahiawa, TH., distance from San Francisco being 2089 miles, and are not only able to copy him easily, but always on the mill. On the morning of the longest day of the year, Operator Buckingham copied him 15 feet from the phones, not only hearing him but reading. KHK is a 600 meter spark station employing 5KW. The fact that we copy him every night gives us a range of at least 2100 miles and in mid-summer at that.

But we believe this range can be bested somewhat, because on the average of twice a week we copy JOC, a 600 meter station in Japan. It is a spark transmitter same as KHK. Not sure about power but am told is about 15 KW. The distance is 5475 miles as near as we can figure from latitude and longitude, and since we hear him so often, believe we are justified in claiming our range as 5000 miles in summer, on 600 meters and from ordinary spark transmitter.

Operator Sargeant has copied several ships off the coast of Japan, one ship being between Japan and the mainland at the time. We have no record of their power but the wave was 600 meters. He also has copied complete messages from ships that were on the opposite side of Honolulu from us when Honolulu couldn't get them because of QRM and Honolulu has one of the most efficient stations in the Pacific. The above examples of receiving are not freaks, because we do it too often to be freakish.

As to daylight range, the writer has copied the SS Manoa WMQ 465 miles at sea at 1:45 p. m., when he could read all over the room, the room being about fifteen feet square, and has read with ease the U. S. Army Transport Thomas WXM at a distance of 750 miles. The power of WMQ is 2KW. the transmitter is a standard 2 KW. 500 c Marconi Panel Type. The

transmitter of WXM is a 5 KW. 500 c Marconi Panel Type as supplied by the Marconi Company to the U. S. Army. I also copied the Costa Rica WQI off the Columbia River in daytime and her set is one as supplied by a small wireless concern on this coast, which ordinarily has a range of 100 miles at night. The distance from Frisco to Columbia River is 575 miles.

Perhaps the description of our receiving apparatus would be appreciated, as with so much big talk your readers will naturally wonder what kind of apparatus we use.

As this station is one of the private ones taken by the Government for receiving work only, they naturally picked out one with good receiving apparatus. We have two complete oscillating audion receiving sets here. One has a range from 600 to 10,000 meters and the other has a range of 200 to 1500 meters. Both are home made sets, the larger one originally belonging to the owner of the station, Mr. E. M. Sargent, the Chief Operator. The smaller set was constructed by myself and used at my station before the war. As both of these sets work identically on 600 meters and bring in the Japanese and Hawaiian stations with the same intensity of signals, we don't think the sets are freaks as it is seldom two home made sets will do the same work. The hook-up is like the one enclosed and works better than any other hook-up we have ever tried.

Please note that we use only single audions and that there is no amplifying arrangement on either set. Also that we do this work without oscillating the bulb, but just bringing it up to the point where it is ready to spill over. The telephone receivers are only ordinary, either of three makes being used, Wireless Specialty, Brandes 2800 ohm or Holtzer-Cabot 3000 ohms.

The aerial is composed of two wires 400 feet long and 45 feet average height. The ground connection is very poor, only a wire hooked on to a water pipe that runs all over the house before ending up in the ground in sandy soil, our station being

located almost at sea level, near the ocean beach in West San Francisco.

The station proper is located on the second floor and is at least 30 feet from the ground. The natural period of our aerial is over 600 as we use considerable series condenser in our aerial lead to cut our wave down to 600 meters.

You can see we haven't the most perfect theoretical set possible on account of our ground, length of ground lead, series condenser and several other small items, but the fact remains that we copy JOC several times each week and he is over 5400 miles away, so we believe we have almost the record for 600 meters in summer on spark work. We would be very glad to hear of any records that you or any of your readers have made on this wavelength as we would like to find out just where we stand.

Of course, there are going to be a great many that are going to laugh at this line, but we can show where we have done this work by our official logs, which are in the possession of Lieut. H. D. Hayes, U. S. N., who is in charge of all Auxiliary Receiving Stations in this district and who can vouch for the trueness of the above statements.

I beg to remain, a friend of QST.

Yours truly,

Walter W. Maynes  
E 2C (R) USNRF

U. S. Naval Radio Station  
San Francisco, California

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#### ANOTHER OF THE "FELLOWS" IN THE RESERVE

Manistique, Mich.  
Radio Station

Dear Eddy:—

Well, Bill Woods (9HS) and myself (9DK) both of St. Louis, Mo., had the A. R. R. L. spirit, for when the war broke out we both dropped everything, gave up positions that paid us extra good, gave up our homes, pleasures, friends, etc., and gave our services to the **Government**.

We went to the Great Lakes Training Station as reserve men, and after a speed test we were sent to this little town of Manistique, Mich (WMX).

We knew our country needed men with wireless experience and we are now grateful to know that we will be remembered for our acts toward the Government.

I just read the QST, Eddy, and I wish you could publish it every two weeks instead of every month.

I think it will be the best thing for the amateurs to get a bit of commercial experience, along with the training in the Navy's way of handling business. After an amateur has the experience of Naval training and handling naval msgs, along with commercial business, and is able to copy anything shot at him and get it the first time, I don't think he should be called an amateur, but an expert.

Commercial and amateur way of handling msgs. are different and if all the leading amateurs of the country had the training given in the Navy and commercial lines, the A. R. R. L. would be greatly benifitted.

Well, Eddy, I will close now and if you can spare a little time to drop Bill and me a line, we certainly will enjoy it.

Hoping we can get back to our own sets and the war would stop, I remain,

Yours truly,

Radio Station Donald H. C. O'Niel  
Manistique, Mich.

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#### HEARD AT 8NH DURING MARCH, 1917.

1DK, 1IZ, 1ZM 1ZS, 2AGJ, 2CB, 2HN 2JU, 2PM, 2ZA, 2ZL, 2ZM, 2ZS, 3ATA, 3ATR, 3BJ, 3ED, 3NB, 3PC, 3RO, 3RS, 3SV, 3UF, 3XC, 4AA, 4AT, 4BC, 4BY, 4CY, 4DI, 4XC 5BR, 5BT, 5BV, 5DU, 5DX, 5ES, 5ZC, 5ZG, 8AAK, 8AEH, 8AFW, 8AIR, 8AKT, 8ALE, 8ANZ, 8AOI, 8APM, 8ATM, 8ATW, 8BE, 8CJ, 8CL, 8CS, 8ED, 8FZ, 8JG, 8JQ, 8JZ, 8KF, 8KI, 8KT, 8LS, 8NF, 8NQ, 8OM, 8OT, 8PC, 8QB, 8QK, 8SD, 8TC, 8VP, 8VX, 8XA, 8YI, 8ZC, 8ZN, 8ZP, 9AAB, 9AAR, 9ABD, 9ABU, 9ADW, 9AEM, 9AEV, 9AFE, 9AGB, 9AGE, 9AGM, 9AHO, 9AHW, 9AIM, 9ALM, 9AMI, 9AU, 9BJ, 9DC, 9DV, 9EG, 9EN, 9EP, 9FW, 9GJ, 9GY, 9HN, 9HQ, 9HS, 9HX, 9IP, 9JW, 9KR, 9LO, 9LQ, 9LR, 9LW, 9ME, 9MK, 9NN, 9NW, 9PF, 9PI, 9QF, 9QY, 9RD, 9RW, 9ST, 9TP, 9TZ, 9UC, 9VP, 9VW, 9WG, 9WN, 9WT, 9WW, 9XE, 9XM, 9XN, 9YI, 9YO, 9ZF, 9ZI, 9ZK, 9ZL, 9ZN, BCH (Battle Creek, Mich.), CV, (Houston, Tex.), PC.

Longest communicating distance for the month, Denver, Col., 9ZF. Communication held with stations indicated by bold face type.



## While We Are Resting

**A**S the heavy hand of government has been laid upon us and has put an end to our activities for the present, it may be well to relate something of our wireless experience during the period just closed.

It was two years ago in February last that a friend and I went to the woods and cut and trimmed two tall, slender trees for my aerial. I have reason to remember that day; for I caught a hard cold and temporarily lost my hearing in one ear. Rather a bad start for a wireless career! I later engaged a teamster to haul my poles to town. The ground being soft, he had a severe struggle with them. A few days later he remarked to me: "I thought you said **poles**; those were **trees**." It cost fifteen dollars to get the poles set on end, to say nothing of the first cost, the hauling of them, and the digging of the holes. I should have made a "raising" and had it done. The aerial is 116 feet long, 62 feet high, and has six stranded wires. (That is, it WAS 62 feet high. It is wrapped up in the corner of the barn now.) My station was for receiving only, although I can send with either alphabet, having formerly been a wire telegrapher. In wireless I never accomplished the feats that seem to have fallen to the lot of other amateurs. I heard 8NH once on galena and the same night a station in the ninth district. NAR came in a few times and a station said to be South Wellfleet very often on galena. NAA of course, always arrived when he was on the wing. I have heard him twelve feet from the receivers. Later on I got an audion. Even then I could not achieve the weird, unearthly results claimed by others. Not with 200-meter waves, anyway, although I tried variable condensers and a small amateur tuner. But I had three experiences that were unusually interesting to me. I once drew sparks from a variable condenser during a heavy snowfall. On February 18 I heard NPG (Yerba Buena, Cal.) calling NPA (Cordova, Alaska). But the truly startling and uncanny

incident with me occurred at 10:20 p. m. on the night of March 24. While listening to NAA I heard a new and peculiar sound, and on adjusting found that the human voice was coming in. The wave length seemed to be about 1000 meters. The speaker ended by singing "The Swanee River." I have never found out who he was, but if he ever sees these lines I hope he will reveal himself.

Taking everything into consideration, I guess I heard my share in wireless; sometimes too much, I thought. The Lord will bear me out in what I say when I declare that there were times here in Western Pennsylvania when artillery could not have been heard. It had come to the point where any attempt to listen to amateurs was simply vexation of spirit. There were so many of them that the ether was generally hanging in tatters. To talk across the street some operators seemed to struggle to blow up their condensers. The art of transmitting on a 200-meter wave was rapidly taking its place with the lost arts of ancient times. One being carried his frantic activities so far that he reached the proud distinction of being able to interfere when one was listening to NAA. Can you beat it? The farther out I shoved the slider on the primary, the louder he yelped. But there was one way I could make his evil designs null and void: by pulling out the secondary I could silence him. This, of course, greatly weakened NAA. Into the wild orgy of wireless waves that was sweeping over this region, suddenly fell the still, small voice of the Radio Inspector, and the rest was silence. It was my privilege one night to listen to the swan song of the two most notorious offenders. They mingled their tears together with wireless. During this affecting performance I was quite calm, for I could see that justice was being done, even though I was involved in the general ruin.

And what of the future of wireless? It does not look bright to me. We may never be resurrected even if we be willing to give bonds for our good behaviour. Many oper-

ators have done their best to discredit the whole fraternity. They have violated the law and tried to appropriate the circumambient ether for their own personal use. Then when they were ordered to dismantle their plants, some ignored the order. I read in the papers that in one town in Western Pennsylvania the chief of police had to start out on a campaign against operators that were delinquent in this respect. It was stated that in Pittsburg there were two hundred that were attempting to defy the authorities. What do these people expect to accomplish with such work? How will they stand when the matter of reopening the stations comes up, if it ever does? The government should keep a list of these delinquents and deal with them according to their deserts when the time comes. But it is not likely that the government will do that. They are more likely to charge these offences against the amateurs as a body and tell them to stand up for sentence. I fear we have been weighed in the balance and found wanting. If the law be not changed the matter of reopening the stations will come up when the war is over. It is likely that the government will then impose regulations on the operator that will make him stop, look and listen. From what I have seen and heard I would say the only way to tame and control him is to prescribe not only his transformer input and wave length, but the size of his aerial and sending oscillation transformer as well. Render him harmless and then he will be good. Do not lead him into temptation. Apply the rod and he will come forth from his trials with a chastened spirit. It is not probable that in the future the "condenser in series" dodge will be a marked success.

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There seems to be a large number of rumors started concerning reopening after the war. A few feel amateur wireless is closed for good. **THIS IS NON-SENSE!** The latest Radio Bill H. R. 2573 leaves amateur wireless unchanged. We shall be encouraged to continue the good work. Where would the radio operators at this perilous time come from if it were not for the amateurs? Amateur wireless in America is here to stay. Put the rumors to flight.

—Editor

## HERE'S HOW EX-9LQ HELPED ON THE NEWS-STANDS. YOU CAN ALL

DO IT.—Editor

Yesterday a letter from the QST office rambled in here. It looked tired. It had a right to, for that letter had been battling around the country since April 16th.

Where? I dunno; but it was up at Lawrence, Massachusetts at one time.

The request for a news-stand contained therein may be obsolete now as the war has knocked the props from under radio in this town as in others but here goes—

There is no store which handles radio goods. There are three news-stands of promising size of which the one at the Sante Fe depot is managed by the Fred Harvey interests and hence "ain't" as far as we are concerned. As to the other two "Allie" Carroll's is a cross between a news-stand and an athletic goods store and sells more "Police Gazettes," "Parisiennes" and "Black Cats" than serious magazines, being a sort of hang-out for the young cubs that have nothing else to do. Early Carder's news-stand is more of a news-stand and sells quite a lot of the more solid reading matter, but the patrons are generally of a more mature age.

There you have the symptoms. It's up to you to diagnose the case.

The places mentioned may be reached by letters addressed as given—no street address needed.

Just a little more "dope" on the local situation. We have a very live radio club with an average attendance of 25 which has disbanded for the summer as is customary. There are four transformer stations and 9 spark coil stations which were in active use last winter and about 20 more that were going to "be ready next week." Kansas University is located here and many of the Electrical Engineering students are interested in radio, about 20 of them having had private receiving sets. K U also has a station (9XP).

Would not bank too much on the data given as there are few of these K U fellows who have a real up-to-the-minute interest and none who give a bump-bump-crash about relaying. I was the only relayer in this town.

S. Kruse

## MUSKOGEE RADIO CLUB.

We have received the following letter from the Muskogee Radio Club of Muskogee, Okla.: "Probably the amateurs in the other parts of the country would like to know what the radio bugs in Muskogee are doing. The amateurs have had very good results from their sets. We have three 1 K. W. sets, and a  $\frac{3}{4}$  K. W. and a  $\frac{1}{2}$  K. W. set under construction. The receiving has been very good during the winter months, communications being handled as far north as Madison, Wisc., 9XM; as far east as Gary, Ind., 9AAB; and as far south as Waco, Texas, Kenneth Reid, 5DM, has been heard as far west as Phoenix, Ariz., and as far east as Danville, Va.—a thousand miles east and west. Burle R. Jones, 5AI, has established a range of 400 miles with an aerial only 60 feet long. Clarence M. Selby, 5BT, has established a good record, having been heard as far north as Baudette, Minn., a distance of 1,100 miles, and also as far east as Grove City, Pa.

Regarding receiving, stations in Minn., Wis., Iowa, Ills., Ind., Ky., Ala., La., Texas, Ark., Kans., and Nebr., have been received QSA on galena detectors.

We would be pleased to hear from other Radio Clubs. All correspondence should be sent to the Secretary."

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To our Dear Old "QST:"

How do we like QST? Well, I should flicker! How does everybody like it? Words cannot express our esteem for it. Far be it from me to see how any one could get along without a copy of it floating around every month. Yes! words cannot say it, so the only way that I know of to let the management know that I like it, is to do what everybody else should do:—Enclosed please find one dollar, etc. You know how it goes and what it's for, so what's the use of QRMing any more.

GN OM and a year as prosperous as the last! from

One of thousands, "3AES."

"And the blue sparks flew all around, all around."

## RADIO STATION, 8AGR.

Mr. F. J. Scupholm of Port Huron, Mich., writes in:—"I enclose herewith a list of amateur station calls which were heard at this station during the last two months, i. e., from January 6 to March 6, 1917. It might interest some of these station owners to know that their signals are being heard this far.

For receiving a regenerative audion hook-up is used.

Using a transformer input of 380 watts this station has worked with 12M, 2XA, 2AGJ, 4AA, 4BY, 5BV and numerous others at lesser distances.

The aerial used is 70 feet long, 6 wires, 45 feet high at open end and 20 feet high at lead-in end. Wires spaced 24 inches.

While I am not a regular subscriber to QST, I get it every month at a news stand and enjoy it very much.

Only stations over 100 miles distant listed.

12M, 2AGJ, 2AR, 2NC, 2RL, 2UF, 2XA, 2ZF, 3ATR, 3NB, 3RO, 3RS, 3UF, 4AA, 4BE, 4BY, 4CK, 4CL, 5AX, 5BV, 5DU, 5EX, 5ZC, 8ABE, 8AEH, 8AEZ, 8AF, 8AFO, 8AIM, 8AJE, 8AMG, 8AOI, 8AOM, 8ARN, 8ASC, 8ASG, 8AV, 8AY, 8HJ, 8JZ, 8LE, 8LJ, 8ND, 8NF, 8NH, 8NQ, 8OH, 8OM, 8OT, 8PA, 8PK, 8QK, 8VC, 8VP, 8WQ, 8XA, 8YO, 9AAB, 9AAR, 9ABD, 9ABU, 9ACM, 9AFE, 9AGO, 9AIM, 9AKI, 9AKO, 9AKP, 9ALD, 9ALE, 9ALR, 9ANO, 9AOI, 9AR, 9AU, 9AZ, 9BJ, 9DJ, 9DK, 9DV, 9EG, 9EP, 9FF, 9FS, 9FT, 9GJ, 9GO, 9GY, 9HQ, 9HX, 9JI, 9KG, 9LO, 9LW, 9ME, 9MK, 9NN, 9NW, 9PC, 9PF, 9PI, 9QK, 9QR, 9QY, 9RD, 9SG, 9TA, 9TG, 9TM, 9UC, 9UK, 9VH, 9VM, 9VP, 9VY, 9WC, 9WG, 9WH, 9WO, 9WP, 9WT, 9XM, 9ZI, 9ZL.

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## FROM PHILADELPHIA.

Robert F. Basford of Philadelphia, Pa., writes: "I am sending you the list of stations heard by me, and I am sure some of the fellows will be glad to see their calls.

12N, 1QA, 12M, 1IZ, 2PM, 2AGJ, 2JD, 2ZV, 2ZK, 2VZ, 2XN, 2AGI, 3NM, 3ZW, 3VL, 3JU, 3TV, 3AOF, 3QD, 3WN, 3ZL, 5DU, 5ED, 8YL, 8YL, 8ED, 8KS, 8CS, 8NH, 8AEZ, 8ZF, 9VY, 9PC.

My longest receiving record is 5ED. He reports having been working that night and the sigs. were very loud, 3TQ also of Philadelphia heard him the same night.

8CS reports having heard me quite often. His station is located at Saginaw, Mich. This seems to be my best record for transmitting. I would be glad to hear from any others who have heard my sigs."

### DULUTH RADIO ASSOCIATION

The first meeting of the Duluth Radio Association was held at the Y. M. C. A. in Duluth, Minn., and the following officers elected: President, Earl C. Hawkins; Vice President, Theodore H. Lutes; Financial Secretary, Rene A. Braden; Sergeant-at-Arms, William D. Wagner. Thirteen members were enrolled, and although this number is a "hoodoo," the prospects are that the Club will be a success.

The purpose of the Club is to control local QRM. All communications should be addressed to R. A. Braden, 1814 East 1st St., Duluth, Minn.

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### EUREKA RADIO CLUB.

On Wednesday night, March 7th, 1917, the Eureka Club of Eureka Ill., was formed and the following officers elected: President, Alvin E. Spencer; Vice-President Glenn Dorward; Secretary-Treasurer, Henry Klaus. Ten members were admitted at the first meeting.

All communications should be addressed to the Secretary.

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### ALPENA RADIO CLUB.

The wireless bugs of Alpena, Mich. have formed the Alpena Radio Club, for the promotion of interest in wireless telegraphy. The officers are: President, W. A. Potter; Vice President, H. Sorenson; Secretary and Treasurer, P. B. Alger; Consulting Engineer, J. Mulvey. All communications should be addressed to the Secretary, at 119 State Street.

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### FROM 3NF.

Mr. N. N. Gaskill, 3NF, Merchantsville, N. J., writes: "On the evening of February 24, I heard the following long distance amateurs. I used an ordinary home made loose coupler, Audio Tron bulb, with Armstrong hook-up."

12M, 11Z, 1ASE, 2DA, 2ZK, 2VZ, 2PM, 2AGJ, 3NB, 3NG, 8VP, 8VX, 8AEZ, 8AJE, 8AMR, 8CO, 8YL, 8NH, 8AMG, 8ALE, 8QK, 8OT, 8XA, 8NQ, 8KF, 9XM, 9PC, 9UC, 9HS, 9JI, 9PL.

Since the first of the year I have heard the following: 8TM, 8YO, 2AUG, 8BC, 8QE, 12L, 4DI, 9XV, 8XE, 8ZN, 8XJ, 2XA, 8CS, 8JQ, 8AKB, 8JL, 8NF, 8QB, 8AIR, 8AEH, 2CB, 9ANO, 9EM, 8EG, 8AAK, 8ZJ, 8AHN, 3WN, 8AHI, 8GU, 3FR, 8VG.

This list may interest some of these station owners."

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### HEARD AT 9VF, ST. LOUIS, MO.

5BV, 8AE, 8CL, 8OT, 8TR, 8ABE, 8KA, 8LR, 8AP, 8BC, 8BB, 9XM, 9NH, 9VC, 9PQ, 9KD, 9DD, 9EN, 8CH, 9RD, 9HX, 9FP, 9OZ, 9AMI, 9KE, 9OL, 9TP, 9AV, 9RG, 9WH, 9WG, 9AGB, 9KV, 9AMN, 9DY, WV and NNB.

### FROM FLEMING, PA.

List of Amateur Stations heard during the last part of Feb. at 8AHR, H. L. Hawks, Fleming Penn.

These results were obtained with a one step amplifier and the Regenerative tuner described in the December issue of QST. She sure is a gold brick, boys.

The greaest distant station I have distinctly heard is 9ZF, Col. I heard him working 9XM on the nite of Feb. 24th, and I heard him O. K. the test msg. which 9XM had sent him.

### All Readable.

1PM, 12M, 1BA, 12N, 1RL, 2PH, 2GM, 2CE, 2UZ, 2UF, 2NS, 2RL, 2AL, 2ZK, 2PA, 3RO, 8ASG, 8JQ, 8JP, 8AEH, 8NH, 8AEZ, 8NF, 8ABE, 8LE, 8JZ, 8WJ, 8AC, 8RU, 8FJ, 8AIR, 8YL, 8QK, 8ANI, 8VX, 8ADB, 8VP, 8YL, 8ATW, 8PK, 9NM, 9AAB, 9UC, 9ABD, 9AAR, 9BJ, 9WC, 9CU, 9AAK, 9XM, 9YO, 9EG, 9UF, 9WG, 9NW, 9RG, 9ZF, 9ZY, 9ACM, 9WO, 9JI, 9RK, 9BJ, 4CK, 4CC, 4BK.

The greatest distance I have been heard is at 99AAR, as far as I know. If any of U distant amateurs have hrd me send card.

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### A BUSY EVENING.

E. H. Hartnell, 9BV, Salem, Wis., writes: "Here is a list of stations I copied the night of the 24th of February from 7:00 P. M. to 1:30 A. M. I used a regenerative hook-up which gave remarkable amplifications. 5DU, 5BV, 3RO, 9EP, 9UH, 9EN, 5CV, 9AIM, 9HQ, 9VH, 9RV, 8AEZ, 8ASG, 8NH, 92N, 9RP, 9KH, 9PC, 8VP, 4AA, 9ZL, 9HU, 9HM, 9LH, 8JZ, 9VP, 9ACM, 9DI, 9QY, 9NX, 9APK, 3TY, 9PA, 8YL, 8AFE, 4BY, 3NC, 8MM, 3NB, 8CO, 8ABD, 8LS, 9KD, 9JI, 2CB, 9XN, 9ZN, 8ATW, 9ALM, 9BJ, 9HS, 9N, 8XA, 9XM, 2PM, (very QSA.). BCH, 9LO, 9AHO, 8NQ, 2VZ, 8OT, 8PI, 9PL, 4CL, 8LB.

These were all received one evening, the following have also been received lately, 9XG, 52M, 8ZN, 9XV, 8ZU, 9XR, 9YW, 2VZ, 2AGJ, 4DI, 5BT, 5CY, 8NL, 8AEH, 8VX, 8AOU, 8KS, 8AAK, 8PN, 8HJ, 8ABE, 8RE, 8KT, 9AAU, 9PF, 9ADO, 9RW, 9AG, 9LE, 9IF, 9BA, 9AIO, 9NM, 9CH, 9ADH, 9WC, 9AAT, 9SG, 9GJ, 9DV, 9GE, 9UJ, 9TA, 9MM, 9OV, 9HX, 9UY, 9KH.

Nearly all these stations came in QSA."

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### HEARD AT GREENVILLE, PA.

Stations heard by 8AKM, A. R. Miller, Greenville, Pa., during the month of Feb. 1917.

12M, 12L, 2AFA, 2ASG, 2CB, 2PM, 2VC, 2ZK, 2ZL, 2ZP, 2ZV, 3AEP, 3NB, 3PC, 3UF, 4BY, 4CL, 4DI, 5AM, 5AP, 5DU, 5ZC, 5ZL, 8AAK, 8ABD, 8AEZ, 8AJE, 8ARH, 8CS, 8NH, 8YL, 8YL, 8VX, 9AEY, 9ALM, QSA alawys, 9BJ, 9DB, QSA at 7 p. m., 9DK, 9EG, 9KG, 9KH, 9MK, 9NN, QSA on four different nights, 9PF, 9PL, 9QR, 9QY, 9VX, 9XM, the best 9 in the Biz., 9ZL, 9ZN.

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### FROM ILLINOIS.

Herbert Baker, Galesburg, Ills., writes: "QST is there with both feet when it comes to radio matters. The following is a list of stations heard by me: 9XE, 9XR, 9XT, 9XL, 9XN, 9XM, 9ZS, 9ZL, 9QF, 9YA, 9YL, 9AIM, 9AMI, 9MK, 9RD, 9RP, 9EP, 9ADL, 9AHM, 9AAU, and 9HX. As you see I am having very good results with a Crystaloi Detector. Wishing the A. R. L. and our "QST the best of success, I remain."



### WANTS MORE MATHEMATICS.

Mr. True McLean, 281 Cascadella Hall, Ithaca, N. Y., writes: "After giving the magazines in the wireless field quite some consideration as to merits, I have concluded that QST is by far the best. There is however, one little suggestion I will take the liberty to make. The average radio publication is written for the benefit of the beginner and experimenter of very limited experience and means. Someone in the good old days coined the very appropriate name of "Hams" and well it fits an astonishingly large and alarmingly increasing number of these would be experimenters. "Our QST" (I like that term) is published for the benefit of the real experimenters and men, and women too, who are in the wireless game for more than the fun of making a nuisance of themselves by disturbing the peace with a spark coil. Night before last I listened in for the relay msg here at Cornell University in the station 8XU. Very strange to say we were not bothered at all by hams with spark coils; but we were bothered badly by a fellow who doubtless had good intentions, but ought to have known better than to keep sending almost one continuous stream, with a fairly broad wave and a loud clear tone that sounded as if he was draining every ounce of energy out of the power lines.

QST has been more or less bitter against these trouble-makers, and not without cause, and I must say that I heartily sympathize; but it seems to me that in one issue you ridicule them and then publish articles for them in the next. The editor's note at the head of the first article in the January 1917 issue shows this inconsistency quite well. The editor concludes his remark with "Do we all feel this way?" I should answer, "No."

I do not wish to convey that I am dissatisfied with the article, or any other, I only regret that the mathematics were not there. I am a person of less education than the average A. R. R. L. man, (I am only a freshman) yet I find only a passing difficulty in the most difficult mathematics I ever find in any radio publication. I think anyone who will purchase a copy of "The Wireless Telegraphist's Pocket

Book of Notes, Formulae, and Calculations," by J. A. Fleming, and conscientiously read it through once or twice, will never have any trouble with any mathematics that are used in connection with practical wireless telegraphy. This book is not intended as a complete treatise on wireless; it is, however, a very complete text of the mathematics used in wireless. In fact it goes almost too far into the higher mathematics used in connection with this subject.

In conclusion, my advice is; to the Editors, make your articles more scientific, and keep up the good work you have started; and to the wireless man, read Fleming's "The Principles of Electric Wave Telegraphy and Telephony" in eight volumes, third edition, and have a copy of the pocket book always on hand. These books will not give you the latest kinks on audion hookups and similar things, but they will give you a foundation for everything in the radio field.

Wishing QST every success in the future, and progress as rapid as it has enjoyed in the past, I am,"

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### MARION RADIO CLUB

"Having been chosen chief operator for our club and our town, I feel it my duty to state that as we are not in any relay route we earnestly desire to be. And you can't hardly blame us for wanting to boost it in our town. Although 8AHR has been using  $\frac{1}{2}$  K. W. all this season good results have been obtained and by next season a full K. W. will be in operation.

Would just like to say that we, the members of the Marion Radio Club think that "it is sure some 'book' thassall." Bue pse don't cut out the lists of calls.

Here is a short list of calls heard at 8AHR on the nights of the 4th and 5th of March outside the 8th and 9th Districts. (Too many of 8's and 9's. Hi).

1ZM, 1DH, 2PM, 2AGJ, 2AIA, 3DI, 4AA, 4CH, 4CL, 4BY, 5DU, 5BU, 5ZE.

These hrd on regenerative set copied out of December QST.

73 QST. de 8AHR."

## ONE ON US!

Clarence Tuska  
Ed. and Mgr. QST

Say, OM, you say my sub. to QST has expired. Some time ago I sent for a six mos. sub. at 50c. The first issue was received in February. Three issues later you tell me my six mos. sub. has expired, when I really have three issues of QST yet to receive, viz. May and June and July.

Also—I had a four mos. sub. to QST. Upon its expiration I renewed immediately for another half year. But the first issue of the renewal was not received until two mos. after the last sub. issue. As a consequence, I have not the two most important copies of ur mag. yet published, i. e., the December and January issues containing complete descriptions of Short Wave Regenerative Receivers.

Some part of your subscription department is rotten, Clarence; beter give it to the O. O. whenever you get an opportunity, it needs it.\*

Am going to renew my sub. for a couple of yrs. as soon as I can raise the necessary two bucks.

Want to compliment you on being able to get hold of such a fine piece of Art as the cover of No. V, Vol. II (April, 1917), which was the product of 8AJD. It combined Patriotism, Radio Success and Useful Suggestions. The Short-throw sw. set me thinkink as did several other mechanical features. THAT WAS A DIAMOND AMONG SHALE!

Radio Communications by the Amateurs is fine business, keep it up.

Without the O. M's yarns, the little, old QST would be a rather dry place to stay.

Where, in the name of the Great Horn-Spoon, did U pick up that tale, "One too Many for Adam?" That is abt the queerest piece of literature I've read in some time. Yeh, verily. Nothing really wrong with it, you understand, old top, only queer, damn queer. In fact, I believe I really like the article as being a decided, very decided, change fm the ordinary run of stories.

The Radio Station photos are a constant source of information.

Why not add a "How to make it" department and some Spark Coil data, or even a Spark Coil Department?

Why not cut out all the preliminary lingo now commonly indulged in, incidental to saying that such-and-such a station or stations hv been recd. at——? What's the matter with saying at heading of list, "Recd. with Regen. Rec. Grebe," or "Heard with Galena," or "Heard with Paragon Regen." or some similar descriptive caption. The name and radio call of the recipient could be appended, in brackets. I figure that with the system outlined above, 51 lines could hv bn utilized for other purposes, in the April issue alone. A practical example of my idea is embodied in the list of 5BV, Little Rock, Arkansas, page 57. There is certainly very little superfluous in that list.

Well, friend Tuska, U brought this upon urself; U asked me to tell U what I thought of OUR QST and I have done so to the best of my ability. Hope the harangue has not been too tiresome.

Urs for radio success,

Reginald Washburn

\* We fixed Regi's sub. up—Clarence.

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## ONE FROM CANADA

I notice Mr. A. Shedd writing about being able to disconnect his ground wire and still hear stns. I think that Mr. Shedd has a long aerial, I would say 500 feet or over.

I found that to be the cause at my station last winter. I tried the same stunt on a smaller aerial, using the same apparatus, but it would not work.

Here are some of the stations heard during the past winter: 1ZL, 1ZM, 1ZS, 1ZW, 1ASE, 2XE, 2ZE, 2ZK, 2ZV, 2ZS, 2JD, 2PM, 2AGJ, 2CB, 2DA, 3NB, 3UF, 3RA, 8XA, 8XE, 8YO, 8YL, 8ZD, 8ZN, 8ZS, 8ZP, 8ZJ, 8AAK, 8VO, 8AOR, 8AEQ, 8VP, 8FR, 8NH, 8ED, 8AOI, 8FS, 8VX, 8EG, 8QK, 8IW, 8QB, 8JZ, 8TD, 8NQ, 8AIR, 8KS, 8OT, 8CX, 8LE, 8AEZ, 8AGO, 9XM, 9ZL, 9LR, 9PC, 9PI. These were all copied at my station on galena.

We Canadian amateurs do not need to feel any pangs of jealousy as of old because we are both in the same hole now—shut down till after the war.

Yours truly,

E. T. Scholey

## RADIO COURTESY .

Let's show it—Editor

QST seems to me to be the greatest medium for fraternalizing the wireless amateurs of the country, but it is deplorable to note what a great lack of common courtesy exists among the most of the amateurs.

In your January issue an article appeared—"What is the trouble"—in which our friend goes on to state that he hears only local stations and with the phones on the ears only. I experienced the same trouble as he did and found it to be a bad connection on the ground switch and trouble in the phones. I wrote him stating my troubles and how they were overcome. Up to this writing this gentleman lacked the politeness of answering my letter.

9MA, in a list of stations heard, in May QST, included my call, 5BF. Naturally, I was greatly pleased to note that my station was heard at so great a distance. On May 9th, I wrote him requesting all the information he could give regarding my signals, enclosing stamp for reply. I again wrote him on May 26th, but regret to state that I have not received an acknowledgment of either of my letters. I cannot see why these fellows have such pitiful lack of courtesy, as it certainly does not require much time to address a postal with a few lines.

I simply call the attention of QST as I feel certain that now is the time you can use your influence to awaken these fellows to a sense of courtesy among brother amateurs.

With best wishes for the success of QST I remain,

Yours very truly,

Jas. C. Behre  
New Orleans

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## FROM HOUSTON

Heard by C. W. Vick, 218 W. 15th Avenue, Houston, Texas: 9ABU, 9ALK, 9AHW, 9ABM, 9AHR, 9AET, 9AAZ, 9AGS, 9ALR, 9AFE, 9ACM, 9CS, 9CA, 9FQ, 9ER, 9IO, 9LQ, 9LW, 9LE, 9LM, 9LO, 9NE, 9NC, 9PP, 9QF, 9QJ, 9TV, 9UK, 9UP, 9UR, 9VP, 9WW, 9WG, 9XM, 9VY, 9LG, 9OS, 9ASG, 9JZ, 9AHR, 9AEH, 9PA, 9AK, 9CL, 9DM, Regularly, 6AU, (Record), other calls (amateurs) RRM, LDX, LBL, JY, LF, LE, LFQ.

## 7ZR HAS MOVED EAST

You can never know with what relief we received your War Edition and the news that QST was to continue in our life as important a place as it has occupied in the past. Due to war excitement we have placed the ranch in Idaho in other hands for the coming year and have come east to take a position with the General Radio Company. Perhaps a few words regarding our work during February and March may be of interest to the Fraternal Order of QST readers. We were using a patched-up transmitter with a two-foot rotor running 2700 rpm (try it some time) with a Paragon Receiver. We worked regularly with 7YS at Lacy, Washington—400 miles—7ZC at Lewiston, Montana, 400 miles—9ZF at Denver, 650 miles—8FD at Phoenix, Arizona, 750 miles—and 9TZ at Eureka, So. Dakota, 830 miles. 6FD reports no fading, "sounds like a commercial station" and 9TZ says we drown out all local QRM, all of which is entirely satisfactory considering we radiate only 4.5 amps. Below is list of stations heard during February and March—nearly all over 400 miles and mostly on 200 meters. Note Fort Wayne, Ind., 1550 miles; Covington, Kentucky, 1630 miles and Lamion, Iowa, 1160 miles.

6AU, 6AN, 6AG, 6AGI, 6AD, 6ANA, 6AKY, 6BD, 6BG, 6BU, 6BY, 6CP, 6DH, 6DM, 6EG, 6EI, 6EP, 6FC, 6FD, 6FT, 6FY, 6HO, 6JG, 6JZ, 6KL, 6KU, 6KV, 6LD, 6LP, 6NN, 6OK, 6OT, 6PN, 6QM, 6SH, 6SJ, 6ST, 6SU, 6SX, 6UG, 6UP, 6VT, 6VQ, 6WC, 6WV, 6WZ, 6XL, 6ZV, 7AU, 7BF, 7BW, 7DO, 7DJ, 7GA, 7JH, 7LF, 7YS, 7ZC, 7ZH, 7ZN, 9AMT, 9AB, 9TZ, 9XM, 9XN, 9XK, 9YO, 9YG, 9UZ, 9VD, 9ZF, 9ZR, 9ZD.

Yours truly,

H. E. Rawson, 7ZR

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## NEW YORK CITY

Mr. George Thurston, 2ASL, of New York City, writes: "The following stations were heard on the night of Feb. 24th, the relay night: 8PA, 9GY, 2AGJ, 1DJ, 8QK, 9DY, 8LN, 8AFE, 8LC, 8NH, 8CO, 3NB, 8PC, 8APA, 8AGV, 9LS, 9AEM, very loud, 9NM, 9JI, 8AEZ, 9GY, 9NW, 9ALW, 9LK, 9VP, 8VP, 9EG, 8ALM, 8ARE, 1ASL, 9BJ, 8AHM, 8JZ, 4BY, 9PI, 8VX and many others not able to copy. I used regenerative set, as described in QST with makeshift amplifier.

## COMMENT

(At WCX Cleveland)

Dear Mr. Editor:

I enjoyed Mr. Groves' excellent article in June QST, on receiving sets. However, my sense of "the eternal fitness of things" absolutely revolts at his conclusion that his experiments using both a "poor" ground and a "good" ground show "that the poor connection cuts down the signals if it is the closest to the instruments," and "if it is the furthest from the instruments, there is no change."

My own experiences do not afford any parallel to this, and I can not believe that in Mr. Groves' case decrease in signal strength was due to a "poor" ground being connected closer to the instruments.

Reason it out in the style of "Mr. Radical Idea" of the Old Man's stories. Imagine a set with two grounds, one poor and one good. Imagine the poor ground to be a very poor ground; go farther and imagine it to be practically a non-conductor; one step further and imagine the acme in poor grounds: a ground lead with an insulator inserted in it. Remember that just a few feet further from the instruments we have a good ground. Now, wattel? Would we expect diminution of signals in this case; and if we got them, would we attribute them to the poor ground with an insulator in its lead, or wouldn't we look to see where we had violated some law of resonance?

By what line of theoretical reasoning does Mr. Groves justify his conclusion?

Yours truly,

K. B. Warner

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## VALVE DETECTOR

Editor, QST,  
Hartford, Conn.

Dear Sir:

I have lately noticed in many electrical publications, descriptions of an apparatus which is called the "Fleming Valve." Permit me to state that this valve was discovered by Mr. Edison in 1884, and was first exhibited by him, as a novelty, at the Philadelphia Electrical Exposition, which was held September—October, 1884.

Full accounts of this discovery were pub-

lished in all the scientific periodicals at the time, and at the first meeting of the American Institute of Electrical Engineers held in Philadelphia, on October 7, 1884, Professor Edwin J. Houston read a paper on the subject; and a discussion took place, in which the late Sir William Preece took part. Since that time the phenomenon has been known in science as the "Edison effect."

It is true that Professor Fleming was the first person to apply the Edison Valve to wireless telegraphy, but I think America should receive the credit for the discovery of the valve itself.

Yours respectfully,

Wm. H. Meadowcroft

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## THE OLD WIRELESS SET

How dear to my heart are the scenes of my  
wireless

When I think back to those old days of  
yore,

When the sweet tones from the set in the  
cellar

Came up thru the cracks in the old oaken  
floor.

That old loose coupler and audion nearby it  
The map and the switch that were spiked  
to the wall.

The long wave set that resided beneath it  
And the sign on the left that shone forth  
my call.

Oh, how dear to my heart are the scenes of  
my wireless,

Those times are now gone but I hope not  
to stay.

Not a job with Marconi could tempt me to  
leave it

If I was a'workin my old set today.

But now far removed is my set from the  
table

And the meter bills now show a sudden  
decrease,

And tho heaving a sigh when I think of my  
wireless

I am patiently waiting the dawn of sweet  
peace.

P. B. OIDAR



## HEARD AT 6ZQ (old 6DM) PHOENIX, ARIZ.

## HEARD AT 2AGJ, ALBANY, N. Y.

Those in black type have been worked.

Stations over 100 miles 9RW worked this season. 2PM, 5BV, 8AEH, 8ASG, 8CS, 8JA, 8JZ, 8NH, 9AAR, 9BJ, 9DV, 9GY, 9LO, 9PF, 9TA, 9XM, 9YI, NAJ.

Stations over 100 miles reporting hearing 9RW this season: 2PH, 2AGJ, 2ALI, 2AHN, 8AOR, 8JX, 8JY, 9ADI, 9AEF, 9BU, 9EU, 9HX, 9WT, 9ZN, 9ZO, BG (Red Wing, Minn.)

5ZC, 5DU, 5ED, 5AX, 5BP, 5BT, 5AB, 5BV, 9ZL, 9TZ, 9GR, 9TP, 9LO, 9XN.

5DM, 5DZ, 5TT, 5YG, 5ES, 5BJ, FC, 8AEZ, 9JW, 9ZF, 9EP, 9ZK (9MQ), 9ABD, 9VY, 9AMT, 9IO, 9YO, 9YI, 9ADK, YJ, 9AHA, 9FU, 9ACN, 9FT, 9UK, 9VN, 9VY, 9WC, 9WF, 9WG, 9WT, 9WW, 9QK, 9QR, 9QV, 9RD, 9RK, 9ST, 9TA, 9TZ, 9UH, 9LP, 9LQ, 9LR, 9LW, 9ME, 9MK, 9MQ, 9NK, 9NN, 9NW, 9ON, 9OV, 9PC, 9PF, 9PH, 9PI, 9QF, 9QJ, 9XD, 9XM, 9XN, 9XR, 9YA, 9YI, 9YO, 9ZE, 9ZF, 9ZL, 9ZK, 9ZL, 9ZN, 9ZO, 9ZS, CHA, GU, HK, PY, RH, SN, WS.

SN, 9LQ, 9ADV, 9DM, 9AMI, 9AMJ, 9HX, 9AAZ, 9BJ, 9CF, 9DB, 9DK, 9DV, 9EG, 9EM, 9EN, 9EP, 9ET, 9EV, 9FI, 9FY, 9GE, 9GJ, 9GN, 9GY, 9HK, 9HQ, 9HS, 9HX, 9IC, 9JI, 9JW, 9KD, 9KV, 9LO.

1ZM, 1IZ, 1PM, 1EIT, 1IRP, 1DK, 1ABF, 1ABO, 1LE, 1ATY, 1UF, 1QV, 1EL, 2ZL, 2ZS, 2PM, 2FS, 2DA, 2AVF, 2BO, 2JU, 2ZM, 2GM, 3AEP, 3UF, 3AK, 3AZ, 3ATR, 3SV, 3XC, 3AMD, 3IJ, 3NT, 3AL, 3NB, 3PC, 4AC, 4CK, 5ZC, CV, 5DU, 8NH, 8JZ, 8AAK, 8ZP, 8ED, 8VX, 8XA, 8YO, 8VP, 8KF, 8AEH, 8AEZ, 8AKM, 8NF, 8AOF, 8CO, 8YI, 8OE, 8ASG, 8PA, 8AJE, 8TD, 8AMZ, 8AUL, 8AFW, 8LJ, 8WO, 8OC, 8FZ, 8LN, 8LP, 8ZN, 8ATR, 8KI, 8AHN, 8AIR, 8LK, 8QK, 8CL, 8YL, 8LE, 8ALE, 8NQ, 9ZN, 9GY, 9PI, 9PC, 9RO, 9EP, 9AU, 9WW, 9ALM, 9NN, 9EG, 9WG, 9ABD, 9AMI, 9LR, 9PF, 9LC, 9KR, 9WF, 9QY, 9ANO, 9UK, 9ACM, 9ST, 9SA, 9ZL, 9LO, 9AEU, 9HN, 9GK, 9QR, 9NW, 9AAB, 9ZL, 9HQ, 9XM, 9VP, 9DK, 9HS.

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## FROM 8ATW.

J. J. Elias of 724 So. Van Buren St., Bay City, Mich., writes: "Believing some amateurs will be glad to see how and where their signals are heard, I am giving a list of stations (out of state) heard during February. 1IZ, 1ZL, 1ZM, 1ZK, 2LK, 2AGJ, 2CX, 2CB, 2BC, 2DA, 3NB, 3NC, 3UF, 3PS, 3XE, 4AA, 4AC, 4AT, 4CK, 4BY, 5AP, 5AM, 5BV, 5DU, 5ZC, 5ASH, 8AEZ, 8ACZ, 8AMG, 8UX, 8VC, 8WL, 8WO, 8ALE, 8LN, 8NL, 8KF, 8PC, 8YO, 8YI, 8QR, 8XO, 8NH, 8QK, 8XE, 8HJ, 8ZO, 8CX, 8CO, 8LS, 8GN, 8ILW, 8IL, 9AIM, 9FI, 9EP, 9VY, 9ZL, 9XM, 9FK, 9XA, 9ZO, 9DV, 9ABS, 9XU, 9EM, 9HX, 9FA, 9BA, 9UK, 9UC, 9KD, 9PJ, 9FW, 9HS, 9GE, 9CQ, 9AHO, 9MG, 9ATR, 9AK, 9AOG, 9UK, 9AIK, 9LR, 9SX, 9EN, 9AIO, 9AHW, 9KV.

Anyone hearing 8ATW kindly drop me a card.

P. S.—Receiving was done with 60 foot high aerial 2,500 meter loose coupler, audiotron bulb, variable, and H. C. 3,000 fones."

## STATIONS OVER 100 MILES HEARD THIS SEASON AT 9RW, SHEBOYGAN, WIS.

1ZL, 1ZM, 2AGJ, 2PM, 3UF, 4BE, 5AA, 5AB, 5AP, 5BV, 5DU, 5XO, 5YG, 5ZC, 8AAK, 8ABE, 8AEH, 8AEZ, 8AIR, 8AKB, 8AKE, 8AOF, 8AOI, 8APM, 8ASG, 8BG, 8CL, 8CO, 8CS, 8FZ, 8IF, 8IO, 8JA, 8JX, 8JY, 8JZ, 8KF, 8KS, 8LE, 8LJ, 8NF, 8NH, 8NQ, 8OH, 8OT, 8PA, 8PR, 8SK, 8VC, 8VX, 8XA, 8XE, 8YL, 8YO, 8YV, 8ZW, 9AAB, 9AAR, 9AAZ, 9ABD, 9ABU, 9ACM, 9AGB, 9AHD, 9AHO, 9AIF, 9AIG, 9AIK, 9AIM, 9AKP, 9AKW, 9ALE, 9ALM, 9AMI, 9ANO, 9ARS, 9AR, 9AU, 9AZ, 9BA, 9BV, 9DU, 9ED, 9ZC, 9AC, 9AG, 9AK, 9AL, 9AU, 9AV, 9ABK, 9ABR, 9AHN, 9AKY, 9ANA, 9ANI, 9BD, 9BJ, 9BV, 9BY, 9CL, 9CR, 9DH, 9DP, 9DT, 9EA, 9EG, 9EI, 9EV, 9FI, 9FT, 9GE, 9GH, 9GK, 9IB, 9IO, 9JG, 9KC, 9KU, 9LG, 9LM, 9LN, 9LO.

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## STATIONS HEARD AT 1DK, DURING MARCH.

1ZM, 1ZF, 1ZS, 1ZT, 1ZD, 1PM, 1CM, 1ABO, 1ASE, 1AAR, 1AH, 1IZ, 1ABF, 1UJ, 2ZL, 2ZS, 2ZP, 2ZK, 2ZH, 2ZA, 2ZO, 2YM, 2DA, 2AR, 2ZV, 2HN, 2VQ, 2FS, 2RL, 2PM, 2DD, 2AGJ, 2AHN, 2AAN, 2BO, 2AFN, 2DQ, 2ATT, 2HF, 2CS, 2JU, 2JD, 3NB, 3PC, 3UF, 3RO, 3CV, 3CK, 3RS, 3AFA, 3WN, 4AA, 4CK, 5DM, 5ZC, 8NH, 8AEZ, 8VP, 8VX, 8XE, 8XA, 8ALE, 8AAK, 8YI, 8YO, 8JZ, 8NQ, 8ED, 8YL, 9PC, 9XE, 9PI, 9AAB, 9XM, 9BL, 9ZF, 9IF, 9EM, 9ZL, and a great many others.

We have talked with 8ALE, 8NH, 8VP, 8UX, and 3RO has called us several times but QRM and QRN so bad on his wave that it was impossible to work him.

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## HEARD BY 6FD IN MARCH

5DU, 5ZC, 5ZG, 6AC, 6AU, 6AV, 6AER, 6AHN, 6AKY, 6ANA, 6ANI, 6BJ, 6BU, 6BV, 6BY, 6CL, 6CR, 6DH, 6DP, 6EA, 6EG, 6EI, 6FC, 6FK, 6FT, 6JG, 6KC, 6KU, 6LG, 6LM, 6LN, 6LO, 6LZ, 6MD, 6NJ, 6NL, 6OI, 6OK, 6QU, 6RE, 6SH, 6SI, 6SS, 6ST, 6SU, 6TG, 6TR, 6TX, 6UI, 6UP, 6VQ, 6WK, 6WJ, 6WP, 6WZ, 7WS, 7ZN, 7ZR, 9AMT, 9EP, 9JW, 9LO, 9ZF, 9KI, 9KW, 9IX, 9IY, "AFD," "CM," "CV," "HOW."

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## FROM 8CM ROCHESTER, N. Y.

1ZL, 1ZU, 1LD, 1IZ, 2ABG, 2IGJ, 2AGJ, 2ZK, 2IG, 2SG, 3ZS, 3NB, 3ZW, 8VX, 8ED, 8NH, 8YO, 8AEZ, 8YC, 8QP, 8YT, 8KT, 8EG, 8ZP, 8AKM, 8OI, 8MM, 8AMG, 8YL, 8JQ, 8AMI, 8AIR, 8JC, 9PC, 9XM, 9AMY, 9XN, 9PI, 9ALM, 9RD, 9QR, 9VY, 9AIM, 9ABD, 9NU, 9AGE, 9AMC, 9ASG, 9GY, 9MC, 9HQ, 9GC, 9ZN, 9WS, 9PA, 9RD.

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## HEARD AT 9ZN, CHICAGO, ILL.

1IZ, 1ZM, 2ZK, 2AGJ, 2ZV, 2PM, 2ZS, 2DA, 3NB, 3PC, 3UF, 4AA, 4CL, 4BY, 5BV, 5ED, 5ZG, 5ZC, 5DU, CV, HL, 6DM, 7EG, 8YI, 8NH, 8XA, 8VP, 8OT, 8AEZ, 8CL, 8CO, 8YO, 8OM, 8ACK, 8JZ, 8JQ, 9XM, 9XN, 9WT, 9DK, 9EG, 9NW, 9PJ, 9ZG, 9GY, 9ABD, 9PF, 9HX, 9EP, 9ZL, 9LO, 9AOF, 9NN, 9HS, 9JW, 9HN, 9AMI, 9NU, 9AGB, 9ZL, 9ZF, 9ZK, 9PI, 9AMT, 9PC.

# FOR SALE & EXCHANGE



**FOR SALE:** Two Packard 1-2 Kw. Transformers, in nice quartered oak cases, cost me \$12.50 each, will take \$6.75 each. H. L. Hawks, Fleming, Pa.

**WANTED:** 1 kw. Thordarson transformer, rotary spark gap; six sections of Murdock condenser; Goodell-Pratt bench lathe; fractional horse-power 110 v. 60 c. AC induction motor; self-feed bench drill capacity 0- $\frac{1}{2}$  inch. Also want a medium sized dynamo in good condition. **FOR SALE OR EXCHANGE:**  $\frac{1}{2}$  H. P. 220 v. 60 c. two phase induction motor;  $\frac{1}{2}$  kw. Packard transformer. State age, make and condition of your goods in first letter. Paul E. Nelson, 1012 S. 18th St., Fort Smith, Ark.

**FOR SALE OR EXCHANGE:** New \$7.25 royal purple wool coat sweater, size 44, sell \$5.00; new \$4.00 pair Barney & Berry skates, sell \$3.00; 2,000 meter loose coupler, \$3.00; two 2,500 meter loading coils, \$4.00;  $\frac{1}{2}$  in. spark coil, \$1.50.  $\frac{1}{4}$  in. spark coil, \$1.00; \$25.00 Ranger bicycle, new front tire, good rear tire, 24 in. frame, sell \$15. Want cash or exchange some of the above goods for good foot power lathe. Also want audion bulb, potentiometer and "B" battery. Enclose two-cent stamp for answer. Martin Knox, Granite Falls, Minn.

**FOR SALE:** One Kw. rotary quenched set whole or separate. Also audion two pair phones, Brandes and Mesco aerial switches and Murdock loading coil. Also other stuff. King Sam, 17 N. Elm St., Waterbury, Conn.

**WANT:** 0-1 or 0-3 hot wire meter and a wave meter. F. R. Pray, 102 Heath St., Somerville, Mass.

**FOR SALE:** Fifty Ford spark coils, excellent for small sending station, \$1.00; without vibrator, \$.75, large static machine, \$5.00. Ad. in March still good. H. C. Hubinger, 711 Fulton Street, Keokuk, Iowa.

**FOR SALE OR EXCHANGE:** A 3-5 Kw. D. C. to A. C. Holtzer-Cabot rotary converter, in splendid condition. Will sell for \$25. or exchange for storage batteries (must be in perfect condition), or sending equipment for a 1 Kw. set. I need a rotary gap, hot wire ammeter, Boston key; also wave meter, amplifying phones, auto transformers, etc. Send stamp. J. H. Manning, 259 Beacon St., Boston, Mass.

**FOR SALE:** One rotary spark gap, has four stationary electrodes and twenty teeth or wheels. The teeth are one inch wide, one inch high, and one-quarter inch thick, with fiber center and fiber back for four stationary electrodes. Gap mounted on  $\frac{1}{2}$  H. P. Roddins & Myers 110 v. A. C. motor which runs 1150 r. p. m. The motor is induction. The starting coils are burned out, this being the only trouble. \$27.50 takes this way or \$80. takes it with them rewound. Guaranteed in A1 condition. Gerald Bullock, 3600 Gladstone Blvd., Kansas City, Mo.

**WANTED:** Good receiving cabinet, tunes to 6,000 meter, (Mignon preferred,) also variables. Have Radio Apparatus Co's receiving transformer, for sale or exchange, or what have you? C. L. White, Stockdale, Ohio.

**FOR SALE—A No. 3 Stewart Auto Warning Signal Horn,** \$1.50; 125 feet of heavy insulated No. 16 copper at 2 cents a foot or \$2.00 for all; an E. I. Co. variable fixed condenser, cost \$1.25, sell for .75; auto spark coil, .25; good battery motor, W. & S. make, cost \$3.00, sell for \$1.50; all instruments in A1 condition. All answered. H. H. Mitchell, 1352 Oak St., N. W., Washington, D. C.

**WANTED—Loose Coupler and Coils.** H. H. Mitchell, 1352 Oak St., N. W., Washington, D. C.

**HAVE ONE PAIR Shoes** with skates attached, tan, size 6 1-2, one year old; 1 oil immersed plate glass condenser, good up to 12,000 volts; one drilling sword, first-class shape. Want sending transformer, variable condensers, storage batteries or something in the wireless line. A. N. Rush 323 Traymore St., Pittsburg, Pa.

**WANTED—All back numbers of QST.** Breunig, 2252 Roscoe St., Chicago, Ill.

**BARGAINS:** For the benefit of the amateurs of Los Angeles and vicinity: Large "JJC" loose coupler, \$10.00.; small loading coils, \$.25 each, large red wood core (6in. x 24 in.) \$.50; rolls of No. 12 bare soft drawn copper wire, 3 1-2 lbs., and 6 lbs., .25 per lb.; 2-3.4 lbs. of No. 21 D.C.C. copper wire (one coat of shellac) \$.50 per lb.; 2 pole switch on porcelain base, D.P.D.T. porcelain switch, license frame, "Cactus Arch File", spool of No. 13 D.C.C. copper wire, another of No. 21 D.C.C. wire, large porcelain antenna insulators (2), 2 large tubings; electric light socket; small transmitter; test buzzer; snap switch; "No Admittance" sign and flat lamp shade; all for \$3.00. Will be at home only in the evenings and all day Sundays. L. F. Seefred, 343 So. Fremont Ave., Los Angeles, Cal.

**WANTED—Four copper plated glass jar condensers;** two factory made variometers; seven strand phosphor bronze aerial wire; omnigraph; variable condensers; mica diaphragm amplifying phones; one vibroplex bug key; second hand aerial wire, suitable for a ground system; Thordarson new type 1 to 2 KW. transformer or type E transformer. Have a motorcycle which will exchange on a 240 or 500 cycle generator set; an efficient rotary quenched spark gap set or what have you? Corwin Endly, 223 West First St., Mansfield, O.

**FOR SALE OR EXCHANGE—Doctor's** 10 inch spark coil, suitable for X-ray or wireless; 1 inch Mesco coil; 1-2 KW. transformer; 1-4 KW. 100 watt transformer. John Di Blasi, 237 E. 75th St., New York City.

**FOR SALE—One Electro Loose coupler,** \$2.50; Type "O" Crystal Detector, \$2.50; small, glass plate condenser, .50; new 1 inch coil, \$3.25, has been used for transmitting 62 miles, night or day; 1 pint size Leyden jar, \$1.25. Harry Holmberg, Bottineau, N. Dakota.



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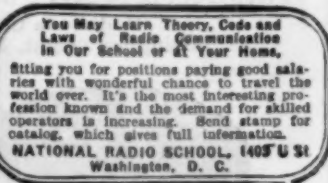
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